



GWENT CLIMATE CHANGE RISK ASSESSMENT TECHNICAL REPORT MARCH 2026



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Author:
Dr. Alan Netherwood
Netherwood Sustainable Futures

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Dafydd Thomas
(Wellbeing Planner)
Workshop facilitation,
communication, and
summary report



Kirsty Wild
(Flourish)
Project
Management



Gwent Public Service Board is comprised of the following organisations:



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Note on the author:

Dr. Alan Netherwood is a Wales based specialist consultant on climate change, with a wide range of experience of advising on approaches to climate risk management and adaptation as part of his work with government, the public sector, and local authorities. He is the author of Wales Climate Change Risk Assessment CCRA3 and supported the UK Climate Change Committee on the UK-wide Climate Risk Assessment in 2022. Alan has previously worked with Pembrokeshire, Cwm Taf Morgannwg and Powys PSBs on climate risk assessments. He has also led academic debate in Wales on climate risk as an Honorary Research Fellow in Cardiff University 2008 -2025 focusing on climate change governance – how institutions organise themselves to address climate risk and ,adaptation.

<https://uk.linkedin.com/in/dr-alan-netherwood-074184a>

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Summary Report:

A summary report is also available on this project aimed at leaders, decision makers, public, third, voluntary and community sector actors across Gwent. This is available on the PSBs climate change webpage on:

<https://www.gwentpsb.org/en/>

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1. INTRODUCTION & BACKGROUND

Aims of the CCRA

1.1 Netherwood Sustainable Futures (NSF) was commissioned in November 2025 to undertake a Climate Change Risk Assessment (CCRA) for Gwent Public Services Board (PSB) covering the local authority areas of Blaenau Gwent, Caerphilly, Monmouthshire, Newport, and Torfaen.¹ The CCRA was funded by Natural Resources Wales, on behalf of other PSB partners. The CCRA was delivered over a five month-period between late October 2025 and March 2026. The aim of this commission was to produce a CCRA which would inform the work of individual organisations within the PSB and to identify collaborative Gwent-wide work to support climate adaptation and resilience across the region.

1.2 This CCRA focuses on the risks that are likely to emerge from predicted changes to Gwent's climate including increased frequency of severe weather, storms, intense rainfall, periods of extreme heat and changing seasonality and their effect on Gwent's landscapes, settlements, economy, and environment. It explores the potential of combinations of these conditions in the region and their cumulative impacts, including increased flooding, drought, wildfire and repeated disruption to Gwent's communities and public services. It also explores how organisations, partnerships and leaders are organising themselves around this challenge and identifies ways which will help these actors strengthen their approach to this complex issue.

Approach to the CCRA

1.3 NSF drew on previous work on CCRAs² for PSBs to design and deliver a five-stage approach (see overleaf) to gather relevant information on climate risk, to explore the sufficiency of current approaches; to determine thematic and place-based risks drawing on insights from local experts, leaders, specialist managers and officers from the public, third, private and community sectors.

1.4 This collective approach was designed to build capacity across Gwent among participants to understand climate risk and adaptation challenges, how they might manifest in their localities, explore priorities, and leadership required at strategic, institutional, operational and community levels across Gwent. The diagram overleaf shows the five stages of the CCRA, each building on the last to develop an informed picture of climate risk across Gwent over the five-month period.

1.5 The project, with support from Wellbeing Planner and Flourish has delivered 18 bespoke workshops³ with NSF undertaking research and analysis of a large volume of data and reference material (see Appendix C) between November and early March. This activity engaged 45 organisations and over 300 people, totalling nearly 40 hours interface with PSB partners' leaders, elected and board members, managers, and officers, including contributions from representatives from other public, voluntary, community and private sector actors.

1.6 This CCRA has been a combined effort, drawing on rich professional and partnership data to begin to 'lift the lid' on this complex and challenging agenda. NSF has provided expert, bespoke input to stimulate a collective exploration of climate risk across Gwent's diverse landscapes, infrastructure, communities, and public services. The observations, insights, documentary evidence, data points, and collated references have been collected on a database (held by the PSB). NSF has analysed this information to inform the priorities and recommendations in the report.

¹ In order to manage the delivery of the above, NSF worked with **Dafydd Thomas**, (Wellbeing Planner) an expert in workshop facilitation, who enabled data gathering using Xleap software and analysis of participants insights as well as working with NSF on the Summary Report. **Kirsty Wild** (Flourish) provided expert project management support enabling the delivery of an intense schedule of workshops, liaising with a Contract Steering Group made up of PSB partner climate leads. This group had a critical role in engaging their colleagues and partner organisations to attend the workshops and provide insights throughout the process.

² Delivering CCRAs for Cwm Taf Morgannwg PSB (Bridgend, Merthyr Tydfil, Rhondda Cynon Taff) Pembrokeshire PSB and as a contributor to Powys PSB's CCRA.

³ Feedback on this activity collected at each session indicated participants felt informed, engaged, heard and were able to explore climate risks. Further details on the workshops and participants are provided throughout this report.

1.7 This is an independent report from the author to the PSB, informed by the wide range of opinion, evidence and data provided by contributors. It is important to note that this commission is for the production of a risk assessment for the use of the PSB and partners to plan forward and not a climate adaptation plan. The recommendations in this report can be used to support partners' thinking on future climate adaptation activity.

Gwent CCRA 5 Stage Process

Stage 1 & 2 Information Sharing & Exploring Climate Risk Gwent Wide	Stage 3 Community Climate Resilience & Deep Dives	Stage 4 Leadership To Address Climate Risks	Stage 5 Moving From Climate Risk to Adaptation
<ul style="list-style-type: none"> stakeholder workshop to understand current understanding of risks and work to address them review of 85 documentary references to understand readiness for climate risks a leadership seminar introducing local leaders to CCRA and exploring leadership roles four climate risk surgeries with local experts using UK and Wales-wide CCRA3 climate risks on Infrastructure, Economy, Communities, Natural Environment providing intel on key concerns and places, providing a long list of issues and the production of a GCCRA database for the PSB 	<ul style="list-style-type: none"> Local Resilience Forum engagement exploring current vulnerabilities in Gwent five face-to-face workshops with stakeholder organisations in Blaenau Gwent, Caerphilly, Monmouthshire, Newport Torfaen to gather place-based intel, initial mapping of what & where; exploring ways of building capacity with target audiences delivery of 5 deep dive half day workshops focusing in detail on highways management; asset management; post-industrial landscape; communities at risk, sufficiency of risk and resilience management with local experts examination of current approaches, systems and processes in need of adaptation, and service implications 	<ul style="list-style-type: none"> two workshops engaging CEOs, Senior Managers, Board and Committee Members explored CCRA material and identified priorities at strategic, institutional, operational, community levels explored arenas, roles, what good leadership would look like institutional and regional governance to address climate risk and the PSBs role 	<p>Analysis and Technical Report</p> <ul style="list-style-type: none"> narratives for each authority area detail on deep dives and leadership 9 climate adaptation priorities for future work in Gwent - with suggested future focus Actions fro whole organisation' approaches from Gwent's public and partner bodies 12 recommendations on how the PSB can support response to the CCRA <p>Web-based Summary Report to engage decision makers, key influencers in different sectors across Gwent</p>

Climate change in Gwent – what can we expect?

1.9 The UK Climate Change Committee's CCRA3⁴ sets out, at the broadest level, the changes in climate that we can expect by mid-century (two decades away) from projections of climate change. This includes, for Gwent, warmer and wetter winters; hotter and drier summers; high variability of extreme weather and increased exposure to weather-related hazards: such as flooding, heatwaves, storm damage, and wildfire. As the CCRA will demonstrate, this projected increase in frequency and intensity of severe weather, and its cumulative effect over time should be of major concern to the public sector and other sectors in Gwent.

1.10 The Met Office (2024) has produced a tool enabling local authorities to produce online reports on future climate projections⁵ providing technical data on projections of temperature rise and rainfall up to the year 2080 depending on different emissions scenarios. The broad messages of Met Office modelling for Gwent local authorities by 2050 suggest:

- winter precipitation averages will increase by between 9% and 26%
- winter temperature averages will increase by between 1.3 °C and 2.7 °C
- summer precipitation averages will decrease by between 16% and 40%;
- summer temperature averages will increase by between 2.1 °C and 4.5 °C

⁴ <https://www.ukclimaterisk.org/>

⁵ <https://climatedataportal.metoffice.gov.uk/pages/lacs>

- sea level rise of between 27-45cm (88cm by 2080)
- an increase in storminess and associated increase in gales, squalls, storm surge.

Table 1 below provides more detail for each local authority area in Gwent

Table 1: Met Office modelling averages for Gwent local authority areas in a 2°C scenario (and a 4°C Scenario) by 2050

Blaenau Gwent	Winter (averages) Precipitation +9% (+19%) Temperature +1.3 °C (+2.7 °C)	Summer (averages) Precipitation -19% (-40%) Temperature + 2.1 °C (+4.3 °C)
Caerphilly	Winter (averages) Precipitation +12% (+26%) Temperature +1.3 °C (+2.7 °C)	Summer (averages) Precipitation -18% (-40%) Temperature + 2.1 °C (+4.3 °C)
Monmouthshire	Winter (averages) Precipitation +11% (+22%) Temperature +1.3 °C (+2.7 °C)	Summer (averages) Precipitation -19% (-33%) Temperature + 2.1 °C (+4.3 °C)
Newport	Winter (averages) Precipitation +12% (+26%) Temperature +1.3 °C (2.7 °C)	Summer (averages) Precipitation -16% (-36%) Temperature + 2 °C (+4.5 °C)
Torfaen	Winter (averages) Precipitation +11% (+24%) Temperature +1.3 °C (+2.7 °C)	Summer (averages) Precipitation -20% (-38%) Temperature + 2.1 °C (+4.3 °C)

1.11 In addition to these broad climate trends and changing seasonality, Gwent like other parts of the UK is highly likely to experience an increase in the number of damaging storms, combinations of river, surface water, groundwater, and coastal flooding; periods of extreme heat and drought; and as a consequence, wildfire, and infrastructural damage. The CCRA explore the potential ripple effect of these changes for Gwent and the local risks that are likely to emerge. The Met Office data *sets the scene* for partners' exploration of climate risk,

1.12 CCRA3 provides UK and Wales based evidence of 61 climate risks⁶, that need to be managed at a national level going forward. Its risk analysis focuses on where for UK and Welsh Governments, more action is needed, what risks need further investigation, where current action should be sustained and which risks require a 'watching brief.' The 61 risk categories in CCRA3 have been inherited from multiple national governments and are designed for UK and Wales level risk management, they are therefore (in the consultants' experience) often difficult to apply when considering regional local impacts but are useful good *starting point* and touchstone for considering climate risk in Gwent from multiple perspectives.

1.13 The CCRA3 risks were used in Stage 2 of this CCRA to begin regional and local analysis with local experts. This CCRA has deliberately moved away from considering single climate risks in a matrix in isolation from each other and scoring each using a RAG rating. Instead, this CCRA has adopted a qualitative and narrative approach to consider combinations of risks across Gwent and in specific locations. Nevertheless, NSF has provided a RAG rating for reference using the results of the CCRA to consider how the risk identified might be 'scored against the UK Climate Commission's newly updated frame for CCRA4. (See Appendix B)⁷. This is for information only and is not used to rank or prioritise climate risks for Gwent

⁶ <https://www.ukclimaterisk.org/wp-content/uploads/2021/06/CCRA-Evidence-Report-Wales-Summary-Final.pdf> This includes 61 risks considered at UK and Wales Levels by the UK Climate Commission in CCRA3

⁷ Note NSF's caveat in appendix B that this is for information only and should not be used to prioritise the risks in this report.

Principles to frame climate risk discussions during the CCRA

1.14 There are four principles that NSF has used in ‘setting the scene’ for exploration of climate risks in the workshops, discussed in the following paragraphs. These are important, as they frame the discussions, emerging data, and analysis in the CCRA.

1.15 Scale of climate impact varies between communities Firstly, that climate risk is likely to impact different communities across Gwent in different ways . Participants were encouraged to distinguish between the current approach through emergency planning to cope and bounce back from individual severe weather events, which will become increasingly demanding as the climate continues to change; into adapting to a new ‘normal’ where certain communities will be experiencing repeated severe weather events, with effects that may accumulate over time, requiring different types of support and service provision; and in the worst cases, having to support communities that are severely compromised as a result of climate change effects in relation to coastal change, spoil tip instability, changing groundwater levels, or frequency and severity of flooding. These=communities will need short - medium- and long-term support to cope and, in the most extreme cases, be relocated a meaning services need to deal with the mental health, practical and financial impacts of relocation.

1.16 Cumulative and combined impacts over time – not single events The frame of climate risk used in the workshops was not to look at the effectiveness of emergency response via Gwent Local Resilience Forum as it is not considering how communities and agencies cope with *individual* severe weather events. Discussions focused on the strategic, institutional, operational and community level challenges of repeated, increasingly impactful severe weather, and its potential cumulative impacts over time. In the later stages of CCRA used a scenario was used which illustrates this point, where a fictitious community called Pontillery, has experienced a steady accumulation of different effects from climate change, impacting wellbeing and public services in multiple ways (see Section 6)).

1.17 Combined and cascading risks The third principle was to consider the combined effects of severe weather events and how their effects might create numerous cascading risks which combine to affect services which support communities . An example of climate risks to social services was used to illustrate this point to workshop participants; where repeated severe weather events might impact in different assets where services are delivered; on road and supply systems and utilities that they rely on to function; and have longer term impact on staff morale and ability to cope with continued disruption to services

1.18 Post event impacts and risks The final principle was to encourage participants to consider the longer term ‘ripple effect’ risks on places, landscapes, and townscapes after repeated climate impacts. An example is the increasing effect of intense flooding in recent years in Gwent. While we know from modelling and flood risk management plans the likelihood and locations of ‘at risk’ communities. This CCRA aimed to explore the risks arising *from* this flooding – its consequences in localities affected on infrastructure; the post-industrial landscape; nature conservation, and service provision Increased flooding is only one aspect of climate risk, a significant one, but its consequences can play out differently in contexts over time, increasing vulnerability. Flooding is a risk amplifier.

1.19 Beyond single events and single risks Framing discussions throughout the CCRA like this, enabled participants to move beyond thinking about single risks (for example in the CCRA3 and CCRA4 frames), beyond single events and the emergency planning function; or seeing climate risk as ‘just’ flooding ; and begin to explore how multiple, combined and cumulative risk might impact on Gwent over time in different places, in different contexts. Using these principles helped to build participants’ capacity to explore climate risk through their own responsibilities, areas of expertise and portfolios of work.

1. EXECUTIVE SUMMARY

a) Gwent's Climate Change Risk Assessment (CCRA) aims to help decision-makers across the region plan for the diverse effects that climate change is likely to have in the coming decades. There are strong signs that Gwent's climate change is already changing, with more frequent impactful severe weather events occurring more often. These events are already affecting our towns, our roads, our land, utilities local businesses and public services. Climate change is starting to affect our everyday lives.

b) Thanks to the Met Office⁸ and UK Climate Change Committee⁹ we have a very clear idea about what changes in climate are likely in coming decades in Gwent. The impacts that we are currently experiencing will gradually intensify. Broad changes will occur, including warmer and wetter winters; hotter and drier summers; and high variability of extreme weather. This will mean increased exposure to weather-related hazards: such as flooding, the effect of heatwaves, storm damage and wildfire.

c) Assessing climate risk is not just about the effects of single weather events or responses to emergency incidents, or single issues like flooding. Its focus is on the risks from repeated impacts as they build over time; how combinations of risks will play out in unique ways in different locations; understanding how different parts of Gwent will be resilient to change, others less so; and the short-medium-long term consequences of climate change on Gwent's communities, townscapes and landscapes.

d) Gwent's Public Services Board has commissioned the CCRA, which has been funded by Natural Resources Wales. Netherwood Sustainable Futures, a Wales based climate risk consultancy has designed and delivered an analysis on the key issues to address on climate risk in Gwent. This has benefitted from the expert input of 46 organisations and over 300 people who have contributed to workshops, seminars and events between October 2025 and March 2026. They have started to explore, with guidance, which impacts are likely where, examined potential solutions and peered into the future to start planning for change. It has been a team effort drawing on local expertise to build capacity on climate adaptation across Gwent.

e) This Technical Report provides detail on the methods, data and outputs of the CCRA . A summary report and further resources on the project are available at <https://www.gwentpsb.org/en/>

f) The Assessment has involved input from local authority leaders, public sector managers and other local experts who help to manage Gwent's roads, schools, countryside, towns, emergency planning, landscapes, and utilities. They have come together with county, town and community councillors, voluntary sector and community groups to paint a local picture of climate risk for each local authority area in Gwent: Blaenau Gwent, Caerphilly, Monmouthshire, Newport and Torfaen; alongside a broader regional view of critical issues .

g) The CCRA suggests that up to this point Gwent's institutions and organisations, partnerships and networks are not planning adequately for the scale and complexity of risks that are likely to occur as a result of climate change. They are unprepared. Institutions have not yet organised themselves to deal with this complexity and the likely scale of change. They urgently need to address their approaches to this issue at strategic, institutional, and operational scales as well as planning support for the most affected communities.

h) The CCRA has helped to identify nine climate adaptation priorities for further work. These are the things that public bodies, third, community and private sector partners should be focusing on now to build climate resilience for the future. Suggestions have been made by the consultant about the next steps needed on these issues. These priorities are a call to action. Working in collaboration on these issues will help to build Gwent's climate resilience. The priorities emerging from the CCRA are as follows:

i) **Post-Industrial Gwent** Gwent's post-industrial landscapes are highly likely to become more dynamic as a result of climate change. There is increased potential for repeated intense rainfall combined with extended

⁸ <https://climatedataportal.metoffice.gov.uk/pages/lacs>

⁹ <https://www.ukclimaterisk.org/wp-content/uploads/2021/06/CCRA-Evidence-Report-Wales-Summary-Final.pdf>

periods of extreme heat and wildfire destabilising coal and spoil tips, ‘activating’ contaminated land; impacting old mine workings, impacting subterranean features and historical landfill, with increased likelihood of subsidence; changing groundwater levels and dispersed pollution. These changes are likely to cause increasing disruption. **Initial focus** – Developing a strategic approach to this complex issue including multi-agency dialogue, and scenario planning to support affected communities.

j) **Highways, Bridges and Paths** It is highly likely that Gwent’s highway, bridge and public rights of way network will come under strain from more frequent combinations of heavy rainfall, flooding, extreme heat, wildfire and ground movement. This is likely to increase the speed of deterioration of already vulnerable road and path networks, affecting surfaces and foundations, embankments and with regular impacts of windfall from trees. Increased bridge scour and debris damage is also likely from river flooding. Disruption is likely to increase from road and bridge closures. **Initial focus:** A Gwent-wide analysis of road, bridge and path vulnerability to influence Government funding and inform local planning.

k) **Co-located infrastructure** Public sector partners and communities will need to plan for increased frequency, scale and costs of disruption to key infrastructure, especially at infrastructural ‘pinch points, where water, sewerage, transport, utilities and drainage infrastructure are co-located. Vulnerability of utilities infrastructure to flooding, landslips, bank erosion, severe weather damage, ground movement and wildfire is likely. Current vulnerabilities need to be better understood. Maintaining the integrity of historical infrastructure such as Monmouthshire & Brecon Canal and reservoirs will become increasingly important going forward. **Initial focus:** Identifying vulnerabilities at infrastructural pinch-points across Gwent and exploring climate risks for to Monmouthshire & Brecon Canal.

l) **Public sector assets** Gwent’s diverse public sector assets including buildings, leisure centres, schools, parks, care homes, hospitals; housing, cemeteries, country parks, county farms as well as other buildings and land -will be subject to different combinations of risk resulting from heavy rainfall, extreme heat, ground movement, increased flooding and erosion and for some, wildfire. Asset deterioration will be speeded up through combinations of increased heavy rainfall and extended hot dry periods. **Initial focus:** Planning for impacts on school property portfolios and industrial and business sites across Gwent are an important first step.

m) **Vulnerable Communities** Gwent’s diverse settlements are highly likely to experience combined and cumulative effects from repeated severe weather events on thermal comfort, accommodation, livelihoods, access to services, access to food and fuel, financial hardship and mental health. Each community will experience this differently depending on local circumstances, landscape features and existing pressures. Some communities will be more resilient than others. This less resilient will need support in the short medium and long term to cope. Service demands from these communities need planning for. **Initial focus:** Progressing town-level climate adaptation planning across Gwent would help support vulnerable communities from combined risks.

n) **Gwent’s Businesses** Small and medium sized businesses in Gwent’s towns, on its business parks, industrial estates, tourist sites and farms will all need to operate in a ‘new normal’ caused by climate change. These businesses are likely to be increasingly impacted by transport disruptions, utilities disruption, property damage, staff and customer and supplier access issues, as well as higher insurance cost. This will mean that their business continuity planning, choice of location and supply chains need to factor in repeated climate risk. **Initial focus:** Detailed location and site analysis and broader business support on this issue will help Gwent’s businesses plan forward.

o) **Wildfire Management** Combinations of warmer conditions, more frequent prolonged periods of heat and seasonal change are likely to mean larger areas of drier ‘fuel’ being ‘available’ for wildfires in Gwent’s grassland, woodland and upland peatland areas, on and adjacent to coal deposits and coal spoil heaps. Increased numbers, severity and length of wildfires will have implications for Gwent’s soils, water and air quality as well as having a direct threat to life. **Initial focus:** More work to understand the potential impacts on woodlands, communities adjacent to potential wildfire areas, utilities, roads and business sites will be an important as a first step.

p) **Altered Landscapes:** Gwent’s natural environment, landscapes and ecosystem services (clean water, air, functioning soil and food production) are highly likely to be impacted by frequent combinations of heavy rainfall,

flooding and extreme heat, drought and wildfire. Woodland, wetland features, saltmarsh and Gwent's farmland will all be affected. Effective vegetation, soil and water management will be needed to address these risks in a more 'dynamic' landscape to 'stabilise' landscape features like slopes, spoil tips and slow down flood waters; as well as ensuring farmland remains productive as the climate changes. **Initial focus:** Resilience of the Gwent Levels and habitats in the Usk and Wye Valleys is seen as critical, alongside broader support for Gwent's farmers and landowners.

q) **Leadership** Gwent's leaders involved in this work have recognised that climate risks are not sufficiently 'factored' in as part of their organisation's activities and forward planning. Their staff involved in this assessment see effective leadership on this issue as critical; and poor leadership storing risks up for the future. Making climate risk a key part of decision-making is seen as essential. Public Services Board has a leadership role too – convening specialist groups to develop evidence, solutions, and support material and workshops to build capacity to address the nine priorities. **Initial focus:** organisation level climate risk assessments and action planning; regional specialist working group programme on priority risks.

r) The CCRA contains expert insights from senior managers, officers, elected members and from different partners on ways to integrate climate risk into their core activities. As a result, the CCRA can act as a foundational resource and management 'manual' to support climate adaptation going forward in Gwent. The detailed, 'surgeries, community and deep dive workshops and leadership seminars have enabled valuable insights into potential adaptation actions. This information should support individual organisations to develop their own climate risk assessments and adaptation plans.

s) The CCRA identified a number of locations where clusters of different climate risks may combine to undermine well-being as the climate continues to change. The way these risks might interplay in these locations needs further investigation, supported by more granular mapping and carefully planned community engagement. It is recommended that methods of town, community and landscape level climate adaptation planning are developed in Gwent to build on this CCRA. The following locations have been identified as potential candidates for more detailed work by local authorities and the PSB.

Blaenau Gwent CBC	Caerphilly CBC	Monmouthshire CC	Newport CC	Torfaen CBC
Abertillery	Bedwas	Abergavenny	Caerleon	Abersychan
Cwmtilery	Caerphilly	Caldicot	Duffryn	Blaenavon
Tredegar	Cross Keys	Chepstow	Newport centre	Cwmbran
	Risca	Monmouth	Gwent Levels	New inn
	Ynysddu	Usk	Usk valley	Ponthir
		Wye valley		Mons Brecon Canal

t) A clear message from the CCRA is that generic information from the PSB to engage the public across Gwent on climate risk is not a priority. Many participants felt that information on local climate risk would be better coming from a trusted source of information, the local authority, rather than the PSB, which does not have a public profile. Strong support was shown for specific engagement with targeted audiences including local authority ward members; local businesses; town and community councils and service specific advice for example on climate risks to schools.

u) The CCRA has identified twelve activities that the PSB could lead on, which would support the activities of individual organisations, these include a convening role for specialist discussions on the priority areas above; taking a lead role in GIS mapping to support spatial analysis of climate risk; enabling discourse with key national and regional partners on climate risk; supporting corporate approaches to integrate climate risk with material that can be adapted in different organisations; and helping to deliver the targeted engagement material described above¹⁰. The PSB should consider developing a programme to deliver this and seek funding to support these and other activities responding to this CCRA.

¹⁰ See Section 8 for more detail

3. GWENT-WIDE CLIMATE RISKS – LOCAL EXPERT VIEWS

3.1 This section describes the early insights gathered from a Gwent -wide exploration of climate risk through an Information Sharing Workshop run on 18th November 2025, via local expert views on climate risk from four thematic Climate Risk Surgeries and an analysis of reference material gathered during the CCRA. This section details the concerns of professional experts, officers, managers, elected members, and representatives of third, voluntary and community sector actors in Gwent. It also reflects on Gwent's current readiness through its strategies, plans, programmes, and projects to address these risks.

3.2 **Information Sharing Workshop** This online workshop on 18th November 2025 was designed to build capacity of attendees to understand and explore what existing activity is already underway to address climate risk, identify data available, data gaps and begin to scope the key challenges for climate adaptation across Gwent. It was attended by 63 individuals representing 17 different organisations, with major input from across the 5 local authorities and NRW to represent their different services and functions. Throughout the workshop participants were able to provide insights into work to date on climate risk and adaptation and identify relevant information, links, and documentation to support the CCRA¹¹.

3.3 As well as providing relevant sources of information, the workshop included interactive exercises which provided some early indications of what climate risk issues concerned attendees. They were asked what issues were critical in dealing with increased climate risk across Gwent. Their responses fell into three categories. Firstly, those that focused on the **characteristics of climate risks** which are highly likely to affect Gwent:

- **scale** of potential impact
- **range** of potential impacts
- **complexity** of risks across diverse geographical area and different landscapes
- **number** of potential risks identified
- **connections** between different types of climate risk
- **vulnerability** of Gwent's communities
- effects of **extreme heat** and **drought**.
- resilience of **infrastructural materials**
- **multiple risks** in the same places
- **combined preparation** for more drought, flood, storms, wildfires, in individual communities and at scale
- **scale** of the threat in comparison to **discourse** (public and institutional)

3.4 Secondly, those issues related to **governance** i.e. how partners work together (or do not) to address climate risks across Gwent.

- a **collective response** is required from all sectors and at all levels
- **whole organisation** responses are required
- **information analysis** as well as sharing is needed
- **effective leadership** needs to provide agency and resources to act
- **communities** need to develop their understanding of the gravity of risk and solutions
- **financial pressures** are likely to inhibit discourse and response
- **vulnerable communities** need to be supported sensitively and respectfully
- **individual service business planning** should factor in climate risk and adaptive actions
- **reframed conversations** with WG, funders and each other are needed about the scale of response required

3.5 Thirdly, how partners respond to climate risk through **adaptive activity** at all scales.

- **business cases for long term investment** need to be strengthened
- **funding limitations** for climate risk/adaptation through natural solutions; infrastructural upgrades and core funding means funding is inadequate to address the scale of likely risks
- **catchment/landscape level responses** to multiple risks will be needed
- **political leaders** need to be engaged, informed, and supported
- **community engagement** should be provided to inform and prepare those affected without unnecessary fear

¹¹: As the project progressed, this signposting continued and a database was developed listing over 85 items of reference material. This resource can be built on by the PSB over time. References are provided in Appendix C.

- **systems thinking** and long, medium, short-term adaptation will be required
- **collaborative operational work** needs to improve to address climate risks on the ground

These views are important indicators that currently, key actors feel the scale, range and inter-connectivity of different climate impacts are not being dealt with sufficiently in Gwent.

3.6 Climate Risk Surgeries

Views on Gwent-wide risk were also sought through four thematic **surgeries** engaging 120 local expert attendees drawn from PSB partners’ organisations and third, community, utility, and private sectors. These surgeries were focused on Infrastructure & Assets; Community Resilience; Local Economy & Business; and Environment & Nature. These half day sessions used the 61 risks contained in the UK and Wales CCRA3¹² and local data to frame the discussion under each theme¹³.

NSF provided a precis of each risk from the UK and Wales level work to stimulate discussion to explore which specific areas, locations, interests, and communities in Gwent might be most significantly affected by the risk. This dialogue enabled qualitative data to be gathered on Xleap software and analysed post-surgery. Locational data was also gathered through this process.

TABLE 2: CLIMATE RISKS LIKELY TO AFFECT INFRASTRUCTURE & ASSETS ACROSS GWENT

Places, assets, infrastructure	Coastal infrastructure	Bridges and pipelines	Energy supply
town centre resilience	A, B, C, U road integrity	minor bridges	maintaining energy supply
leisure and recreation facilities	trunk road integrity	major bridges	reliance on IT
school properties	Gwent Level: farms	gas pipelines	power outages: water treatment
culvert and drainage integrity	Gwent Level drainage	exposure of buried infrastructure	power outages: general
historic structure integrity	Gwent Level: industrial estates	public rights of way bridges	power outages: pumping stations
residential area resilience	pumping stations	landslip damage	impact on sub stations
A, B, C, U road integrity	treatment works	wash out erosion and scour	demand surges in heatwaves
trunk road integrity		effect of run-off	exacerbating critical system flaws
trunk sewers		decommissioned pipes	
coastal path			
			Digital
Embankments/slopes	Surface/subterranean	Water supply	broadband outages
road embankments	landslips	canal abstraction (M&B Canal)	industrial estate clusters
rail embankments	subsidence	deteriorating infrastructure	data centres
canal embankments	movement causing fissures	abstraction impact on riverflow	emergency event comms
slopes adjacent to roads	mine outflows	ripple effects on Gwent Levels	post event comms
vegetation management	impact on road, properties	integrity of treatment works	business continuity repetition
saturated unstable tips and waste	unknown underground workings	demand for tankered water	emergency response repetition
impact on PROW network		water for agriculture	supply chain interruption

3.7 Infrastructure & Assets Climate Risk Surgery

Discussions in the surgery on 2nd December focused on the cumulative effects of combinations of risks affecting key infrastructure from; repeated extreme rainfall; extreme heat; increasing land instability and the degrading of infrastructural and asset fabric; all of which may contribute to the increasing risk of catastrophic failure. Local authority infrastructure and asset managers, transport specialists, Dwr Cymru, National Grid, Wales & West Utilities NRW, Housing Associations, South Wales Fire & Rescue Authority, and voluntary sector participants contributed. Table 2 indicates the concerns raised by attendees. Participants were also able to identify specific locations which they felt would be at increased risk from combinations of climate impacts on essential infrastructure and different types of assets. These are explored in Section 4 of this report.

¹² Infrastructure & Assets Surgery focused on CCRA3 risks I1 -I11; Community Resilience Surgery focused on CCRA3 risks H1-H13; Local Economy & Business Surgery focused on CCRA3 risks B1-B7 and ID1-ID10; Environment & nature Surgery focused on CCRA3 risks N1-N18

¹³ The experience of flooding of Monmouth during Storm Claudia in November 2025 focused discussions during the surgeries on the ripple effects of individual incidents over the short, medium, and long term

It was clear from discussions that considering combined and cumulative climate risks to infrastructure and assets was not currently part of condition assessment and monitoring approaches. Priority risks emerging from discussions were highways, bridge and path networks across Gwent, the instability of slopes and embankments, Monmouthshire & Brecon Canal; locations where infrastructure was co-located and vulnerable (energy, water, gas, IT, sewerage; and the Gwent-levels drainage systems continuing to function. The instability of post-industrial features and their potential impact on infrastructure, and the slow burn impacts (over time) of public services in responding to infrastructure and asset deterioration were of major concern.

3.8 Community Resilience Climate Risk Surgery

Discussions on 4th December focused on the wide range of potential risks to all communities across Gwent that may combine, over time, to impact on wellbeing. It all also focused on particularly vulnerable sections of the community and assets such as schools; repeated impacts on service business continuity; and specific locations that may be more vulnerable than others. Attendees included local authority and health board managers involved with health, social services; community development; place planning; the Local Development Plan; and Education. South Wales Fire and Rescue, Police Community Voluntary Councils and Associations and a Housing Association was also involved. Table 3 indicates key concerns raised during the surgery. Locational information was gathered as part of this process.

TABLE 3: CLIMATE RISKS LIKELY TO AFFECT TO COMMUNITIES ACROSS GWENT

Repeated flooding	Coastal	Buildings	Health
extended area unused to flooding	road and rail network resilience	school property portfolio	access to health facilities
repetition - slow burn impacts	farmland: loss	housing stock flat roof	impact on care provision
vulnerable response assets	farmland: salt intrusion	housing stock insulation (heat)	mental health impacts
road and rail network resilience	Gwent Level integrity	housing stock : damp	incident response capacity
health and social care settings	coastal care homes	historic/older building fabric	thermal comfort - social care
coastal communities impacted	Taveller sites	housing conditions: health	malaria - Gwent Levels
mental health	coastal business viability	private sector landlord readiness	existing health conditions
mobile homes	groundwater level change	repeated maintenance costs	
insurance costs	social isolation		
slow burn social need		Air quality	Culture
	Food	wildfire particulates	Mons & Brecon Canal
Repeated heatwaves	access to food outlets	waste site dust and particulates	Blaenavon World Heritage Site
wildfire frequency	agricultural land quality	low level ozone	and archaeology
urban heat	food prep and storage	Air Quality Management Areas	event cancellation
lack of shade	food deliveries: homes		historical asset damage
thermal comfort	food deliveries; public sector	Wildfire	asset damage -halls, venues
housing stock condition	food price increase	community safety	wildfires: tourism
deprived communities	food bank impacts	mental health impacts	water quality: tourism
school temperatures		damage to property	
social services users	Energy	air quality - particulates	
warehouse depot storage	increase energy demand (cooling)		
	increase energy costs (cooling)		
	over insulation		
	inadequate shade		

Again, participants focused on the effects of combined and cumulative climate risks to communities on essential infrastructure including roads, energy, water and sewerage networks, built assets including housing. and the impacts of this on local people and businesses. A major theme was the cumulative impacts of repeated events on the liveability of some settlements and impacts on vulnerable people, including areas of deprivation. Access to health services and access to food and fuel, especially for isolated communities across Gwent were of concern.

3.9 Local Economy & Business Climate Risk Surgery

Participants on the 11th of December identified a wide range of combined and cumulative risks on regional and local economic interests. Local Authority managers/officers leading on regeneration, economic development,

business support, regional economic regeneration projects, circular economy, and foundational economy, NRW, Housing Associations and Cardiff Capital Region contributed to the surgery. A major focus was the resilience of town centres, business and industrial sites and supply chains to repeated impacts, and the requirement to plan beyond business continuity planning for single severe weather incidents. Table 4 provides an indication of some of the key concerns that attendees felt need to be factored into economic development, place planning economic regeneration and engaging the private sector to build climate resilience.

TABLE 4: CLIMATE RISKS LIKELY TO AFFECT LOCAL ECONOMIES AND BUSINESSES ACROSS GWENT

Repeated flood/storm/heat	Processes	Coastal	Productivity
industrial estates: damage	canal water abstraction	road links (Severn J) economic impact	travel to work
business parks: damage	water leisure businesses	rail links (Severn J) economic impact	access to tourist sites
town centres: damage	business water abstraction	Gwent Level vulnerability	closure and repair of premises
public rights of way network	private water abstraction	coastal farming	centralised storage vulnerability
A&B roads	data Centre water usage	coastal depots/storage	depots and Stores location
industrial estates: access	agricultural production	Severn bridge closure frequency	road/bridge pinch points
business parks: access	agricultural food processing		
town centres: access	events management	Opportunities (potential)	Finance
	markets	longer growing season	business insurance cover
	distribution hubs	increased crops (silage/haylage/hay)	council commercial property:
	business clusters	extended produce range	rental income
	supply chain resilience	food growing diversification	insurance
		cooling retrofit	maintenance costs

For potential opportunities in agriculture – these would be determined by adequate water availability, soil integrity and an farm businesses adapting to cumulative impacts on their production through effective land management

3.10 Environment & Nature Climate Risk Surgery

Participants on the 9th December identified a wide range of combined and cumulative risks on nature recovery, ecosystem services, and habitats across Gwent. Attendees included Local Authority managers and officers leading on ecology, countryside, biodiversity, landscape and habitat management, regeneration; rural/agricultural economy; representatives from Wye Valley AONB, NRW ecologists and Gwent Living Levels. Gwent Wildlife Trust. Members of Gwent Green Grid Partnership and Local Nature Partnership also attended ¹⁴.

The integrity of the Gwent levels, deterioration of habitats in Gwent's river valleys, impacts on woodlands and soils was of major concern. Another key theme of discussion was the potential for climate change to destabilise historical landfill, mine-workings, contaminated land and spoil and coal tips with ripple effects on water quality, vegetation and biodiversity. The dialogue in this surgery also covered the role of nature in helping to manage landscape change, excess water and extreme heat in landscapes and townscapes. Table 5 indicates some of the key concerns emerging from the session. Habitats and landscapes were the focus of discussion rather than species-specific risks from changing climate conditions.

¹⁴ National Trust: National Farmers Union, Farmers Union of Wales were approached but did not attend.

TABLE 5: CLIMATE RISKS LIKELY TO AFFECT GWENT'S ENVIRONMENT & NATURE

Terrestrial	Freshwater & Marine	Agriculture & Forestry	Soils
river valley : multiple ecological impacts	river system washout and scour	water availability: agriculture	erosion
river floodplain: multiple ecological impacts	pollution pulses from flooding events	tree loss: windfall, drought, disease	compaction
Gwent levels: hydrology, drainage, biodiversity	drying of water courses and wetlands	hay/silage/fodder availability	nutrient leaching
woodland: loss, windfall, drought, disease	impact on fish stocks	seasonal change: planting, harvest	Gwent Level: Reen erosion
lowland agriculture: vegetation and soils	vegetation growth choking water courses	pest management	riverbank loss
upland moorland: drying and wildfire	algal bloom frequency	saltwater intrusion (Levels)	peat erosion/drying
wetlands: drying	sewage overflow	forest wildfire increase	coal tip stability
invasive species abundance	contamination run-off - roads		erosion of carbon stores
grassland fires	contamination run -off - post industrial		
soil erosion and loss	loss of salt marsh		
river bank erosion	saline intrusion		
pollution pulses from flooding events	altered fish stocks		
habitat degradation (all)	nutrient loading		
	sediment erosion and dumping		

3.11 As part of this initial work, NSF also engaged with members of **Gwent's Local Resilience Forum (LRF)** in January 2025. This includes the emergency planners from each local authority, and officers from the emergency services and health and voluntary sectors which deal with critical incidents including severe weather events and their immediate aftermath. This was useful to understand levels of response, forward planning and locations that are currently particularly vulnerable to risk. LRF representatives attended many of the subsequent face to face workshops and deep-dives providing valuable insight on potential future risks in Gwent.

3.13 It is very important to understand that the role of the LRF under the Civil Contingencies Act is to respond to individual events to minimise risk and to enable things to return to normal. They do not plan for increasing levels of risk from repeated and more frequent events and cumulative impacts of climate risk in localities. It is clear from discussions that the LRF function is likely to become increasingly stretched as Gwent feels the effect of climate change. This issue is explored in more detail in Section 5.

3.14 Current approaches to climate risk in Gwent

In order to further understand Gwent's work to date and preparedness for climate risk and adaptation, NSF undertook a detailed analysis of 85 documents, strategies and plans cited by participants or identified as relevant as the project progressed. The documentary review enabled NSF to get a clearer understanding of the challenges facing Gwent's wellbeing, providing a key insight into how climate risk acts as a risk multiplier for many of the issues that Gwent's strategies and plans are seeking to resolve. These documents were reviewed with a number of questions in mind: how they frame climate risk and adaptation; what commitments they contain to address climate risks; whether they list detailed activities or interventions (levers for adaptation); and whether they contain data that is useful to the CCRA. While this is a snapshot of current activity, these documents are potentially important as drivers and levers of action, funding, and accountability. Analysis of them provides us with a strong indicator of how seriously and *specifically* their aims and objectives are currently addressing climate risk and adaptation.

3.15 NSF's analysis suggests that these strategies, plans, projects, and activities in Gwent can be categorised under the following separate 'headings': Adaptive; Intentional; Contextual; and Absent. The following paragraphs explain what is meant by these terms. Appendix C provides references of national, regional, local, and institutional documentation with a precis of how they have framed climate risk, those with locational *climate risk* data have an asterisk*.

3.16 **ADAPTIVE** strategies, plans and projects place a strong emphasis on climate risk and adaptation with detail on specific interventions, evidence, locational data, and recommendations to build climate resilience in Gwent.

The review identified the local authority flood risk management strategies, Dwr Cymru's plans for water, drainage, and wastewater and NRW's work on flood mapping, river basin management planning, and landscape

as the only ones factoring in climate projection data to forward planning. Welsh Government's TAN 15 provides locational data. Transport for Wales are the only organisation currently committed to detailed work on climate mapping. There are clear statutory and legislative expectations for those involved in water resource management, river basin, and flood risk management planning to include climate risk as an integral part of their forward planning. We should expect to see this.

3.17 **INTENTIONAL** strategies plans and projects with commitments to address climate risk and adaptation but do not provide detail on what will be done to address this within their aims and objectives. They act as a broad framework for those involved to address climate risk with few specifics.¹⁵

Examples include four local authority Local Development Plans and their Supplementary Planning Guidance Gwent's Green Infrastructure strategies (both regional and local); Cardiff Capital Region's Regional Transport Plan, Marches Forward work on Green Economy; NRW's work on the area statement including aspirations on their Climate Ready Gwent web-page; SONAAR State of Environment Report (2025) with NRW focusing on climate change as a key driver of ecological change and the role of nature based solutions. There is very little detail behind the intentions of these documents. Caerphilly CBC and NRW are the only corporate plans reviewed that has a specific intention to address climate risk. Wye Valley AONB is the only land management partnership that seems to have a specific commitment to address climate risk. NRW's Southern Ebbw Forest Resource Plan is the only locational plan reviewed that commits to focus specifically on climate risk.

3.18 **CONTEXT**: strategies, plans and projects that refer to climate risk as one of a number of contextual issues relevant to their aims and objectives, with limited or no detail on specific impacts or risks. Despite mentioning climate risk as a key factor, these strategies and plans provide an unclear message on how climate risk may impact on their aims and objectives.

Examples include; some town and community level place-making plans, local nature recovery, and countryside plans; climate and nature emergency plans, green infrastructure plans, wellbeing plans. Plans covering the Gwent-levels, Wye Catchment and Usk Catchment all see climate risk as an important factor but provide no evidence to back that up. The only corporate plan reviewed that views climate risk (other than those previously mentioned) as a key contextual factor is Blaenau Gwent CBC's. The only sectoral strategy reviewed that does the same is Monmouthshire CC's Economic Employment & Skills Strategy.

3.19 **ABSENT**: strategies, plans and projects where there is no reference to climate risk and adaptation; it is not referred to as factor which might impact on the aims and objectives of the given activity; where there are climate change commitments they focus on decarbonisation only

3.20 This category accounts for 30 of the 85 documents, plans and strategies reviewed as part of this CCRA. This includes corporate plans PSB partners (other than NRW, Caerphilly and Blaenau Gwent) area energy plans, climate change and decarbonisation plans, most economic regeneration strategies; the majority of town centre plans; local authority level transport strategies; all but one of Gwent's forest resource plans; the work of the Regional Partnership Board and South East Wales Trunk Road Authority (SEWTRA). These corporate and partnership documents are key drivers for forward planning in areas of work that are highly likely to be affected by climate risk, including development, energy, transport, forest management, emergency services, and the local economy.

3.21 The initial picture emerging from discussions is that climate risk and climate adaptation have an extremely low profile in most key corporate, strategic, programme and delivery documents of partners in Gwent. This is more than just an absence of words. These are the frameworks and systems that partners have disposal to manage climate risk and build climate resilience or not. They matter.

¹⁵ Please note that the following plans were still under development and unavailable to review at the time of the CCRA
ABUHB (2026) Corporate Climate Change Risk Assessment; Caerphilly Local Nature Partnership (2026) Nature Recovery Plan

3.22 Discussions during the CCRA suggest that the low profile has serious implications for the ability of leaders and managers to address climate risk at an institutional, partnership, programme and project level'; inhibiting decision-makers from prioritising climate adaptation alongside, or as part of, other commitments; and assigning resources to gather evidence; or staff time to collaborate within their organisations or with partners. A low strategic profile and organisational inertia on this complex problem is seen by local experts as a risk amplifier.

3.23 Discussions in the surgeries also indicated that current strategies, plans, programmes, and frameworks are not sufficiently addressing climate risk. These observations are also consistent with those of Gwent's leaders (See Section 6). There is clearly work to do to integrate and embed climate risk into the work of Gwent's organisations, their aims, their objectives, outputs, and outcomes. In many key strategic documents, at best they are playing 'lip service' to this issue, at worst they may be discounting climate risk as a critical; determinant of their success.

4. PLACE-BASED CLIMATE RISKS IN GWENT

4.1 This section describes the CCRA's findings on particular locations and places that may become more vulnerable as the climate continues to change in Gwent. The CCRA has explored, through the surgeries, face to face workshops, and deep-dives, what risks might occur where. The CCRA has been able to gather evidence from participants on which parts of Gwent may be more susceptible to combinations of risks and cumulative impacts as distinct from impacts of individual severe weather events. A precis of risks and locations are provided for each of the 5 local authority areas.

4.2 It is very important to note that the place-based information in this section is viewed as an **initial and exploratory view** of locations at climate risk in Gwent. Much more detailed analysis and mapping work is needed post CCRA at an individual settlement, landscape, or asset level to explore the specific vulnerabilities and effects of combined risks on a city, town, village, feature or piece of essential infrastructure. The CCRA offers a view of priority locations for more detailed investigation.

4.3 Data gathering on vulnerable locations included:

- documentary evidence, (particularly maps and datasets) – see Appendix C – examples include flooding locations from Flood Risk Management Strategies, information from NRW on designated nature conservation sites and Transport for Wales on current rail network vulnerability
- discussions within the surgeries and a mapping exercise carried out in each of the five face-to-face workshops in Llanhellieth (Blaenau Gwent) , Caerphilly; Abergavenny (Monmouthshire) Newport and Pontypool (Torfaen)
- evidence from the Gwent wide workshop, deep dive discussions, and leadership seminars.¹⁶

In all of this activity, participants were encouraged to draw on their local and institutional knowledge of landscapes, settlement, infrastructure, population and service delivery to identify vulnerable locations and explain why they were viewed as being so.

4.4 The basic mapping exercise in the face-to-face workshops asked participants to place dots on printed maps and to provide a written explanation of their view of the particular risk or vulnerability in that location. This enabled discussion of combined risks and capacity building among participants to understand different perspectives about risk and locations . This enabled the consultancy team to take the data from the other workshops, discussions with the Local Resilience Forum and documentary evidence¹⁷ and work up a 'master' map for each local authority with categories for the following risks: repeated flooding, wildfire, impacts on the post-industrial landscape; economic/business interests, health; community resilience (where participants felt that combinations of risks might severely undermine wellbeing); transport networks (access/highways/bridges); housing; and impacts on the natural environment.

4.5 The CCRA also involved discussions with PSB partners' Geographical Information Systems specialists in December 2025 to understand what data and map layers are readily available to partners which might help more detailed place-based mapping post March 2026¹⁸. The GIS leads produced a spreadsheet to summarise what data is available from both Datamap Wales and their own individual organisations to inform more granular and spatial analysis of climate risk . This is discussed at the end of this section.

4.6 The following pages provide a two- page brief summary of priority locations emerging in each local authority area. This not a definitive list of the critical issues and place that are most vulnerable, but is a 'starter for ten,' an indicative list of places that were discussed during the CCRA, illustrative of the types of issues that will become more frequent and widespread as Gwent's climate changes. They are a foundational resource for further exploration both Gwent -wide and for each local authority at a spatial level.

¹⁶ Highways Management; Asset Management; Post Industrial Landscape; Communities at Risk and Building Local Resilience

¹⁷ Particularly local authority flood risk strategies and TAN (15) and NRW Flood Risk Maps, but also information from strategies discussed and listed in Section2

¹⁸ Please note, detailed spatial mapping was not part of the NRW commission from NSF. Detailed mapping work needs to be undertaken by the PSB in their climate adaptation response. Their 'analog' maps can be used as a foundation for this.

4.7 BLAENAU GWENT COUNTY BOROUGH - Place-based Climate Risks

- a) The effect of changing climate conditions across Blaenau Gwent's **post-industrial features** were of major concern and should be treated as a critical strategic issue for further investigation. Climate change is seen potentially destabilising category C and D coal tips, other spoil tips, 'activating' contaminated land, impacting old mine workings and landfill, with increased likelihood of subsidence, changing groundwater levels and dispersed pollution. Cascading impacts from these risks were identified, for example Cwmtillery landslide threatening to block the access road to Dwr Cymru's Cwmtillery Reservoir.
- b) Major concern was expressed about the effects of increased rainfall levels on **valleys communities** already experiencing more frequent flooding, where much of the housing, road and utilities infrastructure are located on the valley floors and by the rivers. With a 9% + increase in average winter rainfall predicted by the Met Office in coming decades this is seen as a major challenge. Abertillery; Bedwellty Gardens, Brynmawr, Deighton Llanhilleth, Nantyglo, Peacehaven, Tredegar, Trefiland and new housing in Rassau were mentioned as being particularly vulnerable.^{19 20}
- c) Recent **flood mitigation** work in Llanhilleth and **community engagement** in Cwm are examples of the types of intervention that are going to be needed Borough wide as the area receive increased. Communities across the Borough will need to be prepared for more frequent, impactful flooding affecting their homes, travel, and essential local infrastructure.
- d) The effect of climate risk on the **mental health** of residents across Blaenau Gwent is seen as a current problem that is likely to increase as the landscape and communities are affected by combined climate risk from storm damage, an unstable landscape, increased flood, and wildfire risk. Thermal comfort, air quality, and damp in housing were also raised as health concerns.
- e) Blaenau Gwent's **highways and bridge infrastructure** is seen to be vulnerable from combined effects of increased flooding, inadequate drainage, landslips and extreme periods of heat undermining road and bridge infrastructure. With bridges experiencing scour from high river flows. Repeated impact on the A467, B Roads and unclassified roads and Beaufort Bridge are of concern.
- f) Maintaining **slope stability** and minimising soil and vegetation loss, especially the steeper slopes within the Borough were seen as critical issues, so that transport, utilities infrastructure and housing is not affected. Recent events in Abertillery and Cwmtillery with land instability were seen as indicative of problems which might occur more widely across the Borough.
- g) Effective **wildfire management** for existing forestry, valley woodlands, grassland and upland peat areas were raised, and the impact of wildfire on coal rich soil deposits and coal seams. A lengthier drying season for wildfire fuel load was seen as a major risk. The following locations were thought to be vulnerable to this: Brynmawr; Sirhowy Woodlands, Clydach Dingle; Rassau, Mynydd Langyni, Trefil Du and Trefil Las.
- h) Access to services from direct impacts on the transport network and **food retail** were raised given recent experiences of supermarket flooding in Brynmawr. Concerns were voiced about food security for valleys communities should roads become impassable and food outlets being affected on a regular basis.
- i) Sites at Cymcelyn and Rassau were identified where **dispersed pollution** is likely due to increased rainfall levels. Discussion focused on needing to understand where current contaminated land is from official sources

¹⁹ The work of Netherwood & Thomas (2019) on Climate Ready Gwent 'Lived Experience' focused on climate risks and adaptation challenges seen through the perspective of young people via Blaenau Gwent's school eco-committees.

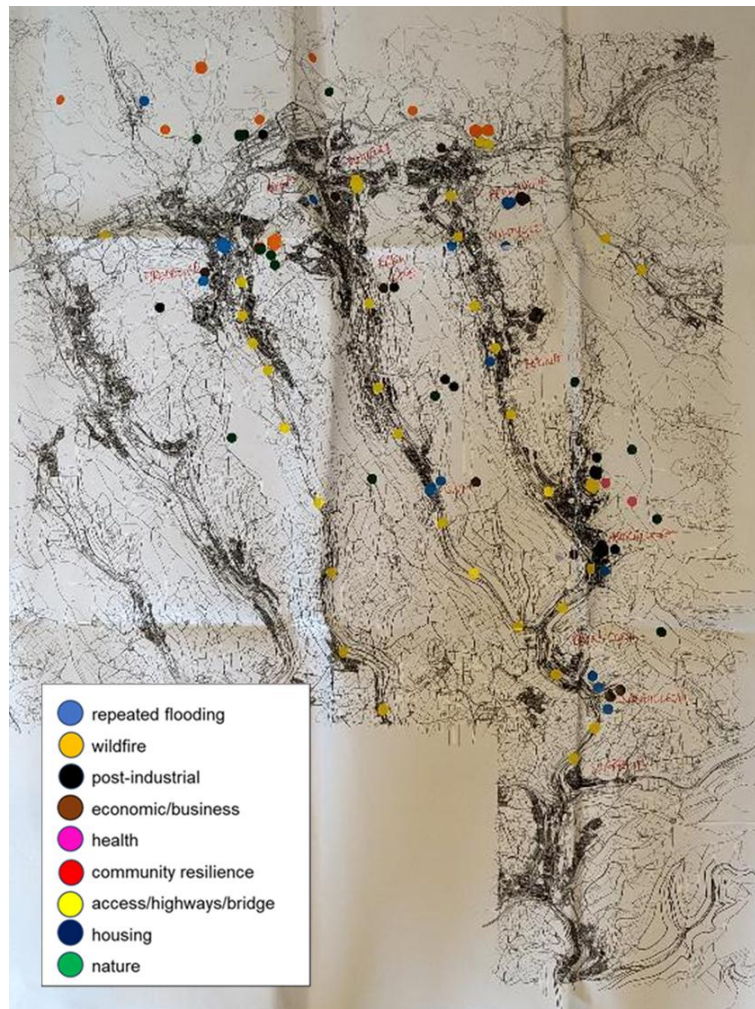
²⁰ Blaenau Gwent's Flood Risk Management Strategy and NRW's Flood Risk Maps for TAN 15 also indicate these communities and others in Blaenau Gwent at being at increased risk from combinations of river, groundwater, and surface water flooding as a result of climate change. Welsh Index of Multiple Deprivation (2025) identifies Abertillery, Cwmtillery, Beaufort and Tredegar as being in the top 20 most deprived areas in Wales.

but also using community knowledge of old mine workings and activity where maps and documentation are not available.

j) Blaenau Gwent’s **woodlands**, especially in the river valleys were seen as being susceptible to combinations of risks, increased threat of wildfire due to longer ‘drying seasons,’ increased wildfire fuel load , tree disease, and degraded habitat. Penrhiwgarreg Forest , Silent Valley and Sirhowy Woodlands are seen as being at risk.

k)The impact of climate risk on **reservoir levels** was raised as a concern. NRW monitoring is already required, however understanding the levels of risk and communicating this to residents who may be affected should reservoir infrastructure fail (from effects of combined heavy rainfall and drying) was seen as essential. Reservoirs at Carno, Cwmtillery, Shon-sheffreys were highlighted as being of concern.

l) Some areas seen as being at risk in Blaenau Gwent are among the top 20 most deprived wards in the Wales including the Index of Multiple Deprivation- areas covering Abertillery, Cwmtillery, Beaufort and Tredegar .It is highly likely that climate change will act as a risk multiplier for these and other vulnerable groups across the Borough. In terms of combined risks, the map (below) indicates clusters of risks in the **Tredegar and Abertillery** areas. It is recommended that detailed work on climate risk for these areas is undertaken.



4.9 CAERPHILLY COUNTY BOROUGH - Place-based Climate Risks

a) The effect of changing climate conditions across the Borough's **post-industrial features** were of major concern, seen as potentially destabilising category C and D coal tips, other spoil tips, 'activating' contaminated land, impacting old mine workings and landfill, with increased likelihood of subsidence, changing groundwater levels and dispersed pollution. This along with wildfire threat to spoil tip stability is seen as a priority for further investigation. Local examples discussed included **subsidence** at Bedwas; ground movement affecting roads at Troedrhifwuch (in Rhymney Valley) and the threat of road closures to isolated communities (e.g. Turphill Rd). The potential for increased **dispersed pollution** from contaminated land sites in Machen, from leachate from Ness Tar Plant, changing hydrology at Penrhos (Coal Tip), at Ty Llwyd Landfill near Ynysddu and the old paint works at Waterloo. It is important to note that these are illustrative of locations where change is already seen to be happening or indicative of similar assets which may experience change. Each location will need further, more detailed investigation regarding potential climate impacts .

b) Concern was expressed about the effects of **increased rainfall** on the Borough's communities already experiencing more frequent flooding, where much of the housing, road and utilities infrastructure located on the valley floors and by the rivers within and beyond the Caerphilly 'basin.' With a 12% + increase in average winter rainfall predicted by the Met Office in coming decades this is seen as a major challenge. The following locations were mentioned as already as being particularly vulnerable.²¹ Bedwas, Blackwood, Caerphilly, Darran Valley Deri Draethen. Llanbradach, Trethomas, and Ystrad Mynach, Machen Pontymister were all identified as being vulnerable to projected increases in rainfall²² It was recognised that communities across the Borough will need to be prepared for more frequent, impactful flooding affecting their homes, travel, and essential local infrastructure.

c) Discussions focused on **business resilience**, and the inability for small businesses to bounce back after repeated events was raised as a serious issue. Repeated severe weather events have already impacted businesses in Blackwood, Caerphilly, and high street businesses in Risca. The Borough's **business parks and industrial estates** such as Tredomen and Bedwas were seen as being vulnerable to a changing climate from onsite risks and access issues.

d) The effect of climate risk on the **health** of residents, particularly the mental health of residents across the Borough is seen as a current problem that is likely to increase as the landscape and communities are affected by combined climate risk from storm damage, an unstable landscape and increased flood and wildfire risk. Impacts on health assets such as Ystrad Mynach hospital, care homes (e.g. New Tredegar) and health impacts on low level ozone and air quality in Air Quality Management Areas (in Crumlin and Swffryd) were also raised as health risks.

e) For the Borough's **housing** of all types , thermal comfort , air quality, damp and storm damage were seen as impacting on residents' health and disposable income. Concern was expressed about climate impacts on housing condition on housing estates Borough-wide, especially regarding thermal comfort in extended heatwaves. Effects on building condition and maintenance in Rhymney was also discussed.

c) The Borough's **highways and bridge infrastructure** is seen to be vulnerable from combined effects of increased flooding, inadequate drainage, ground movement, landslips and extreme periods of heat undermining road and bridge infrastructure with bridges experiencing scour from high river flows. . Repeated impact on the A469, A472, B4251 and B Roads and unclassified roads Borough-wide were thought likely with the following routes highlighted as being vulnerable: Caerphilly – Senghennyd Bedwas Industrial Estate, Maesycymer and Nantgarw, Pontlloynr, the A468 at Machen A470 and A468 junction Newbridge and Crosskeys.

d) Effective **wildfire management** for existing forestry, river valleys , woodlands .grassland and upland peat areas were raised, and the impact of wildfire on coal rich soil deposits and coal seams. A lengthier drying season

²¹. Welsh Index of Multiple Deprivation (2025)

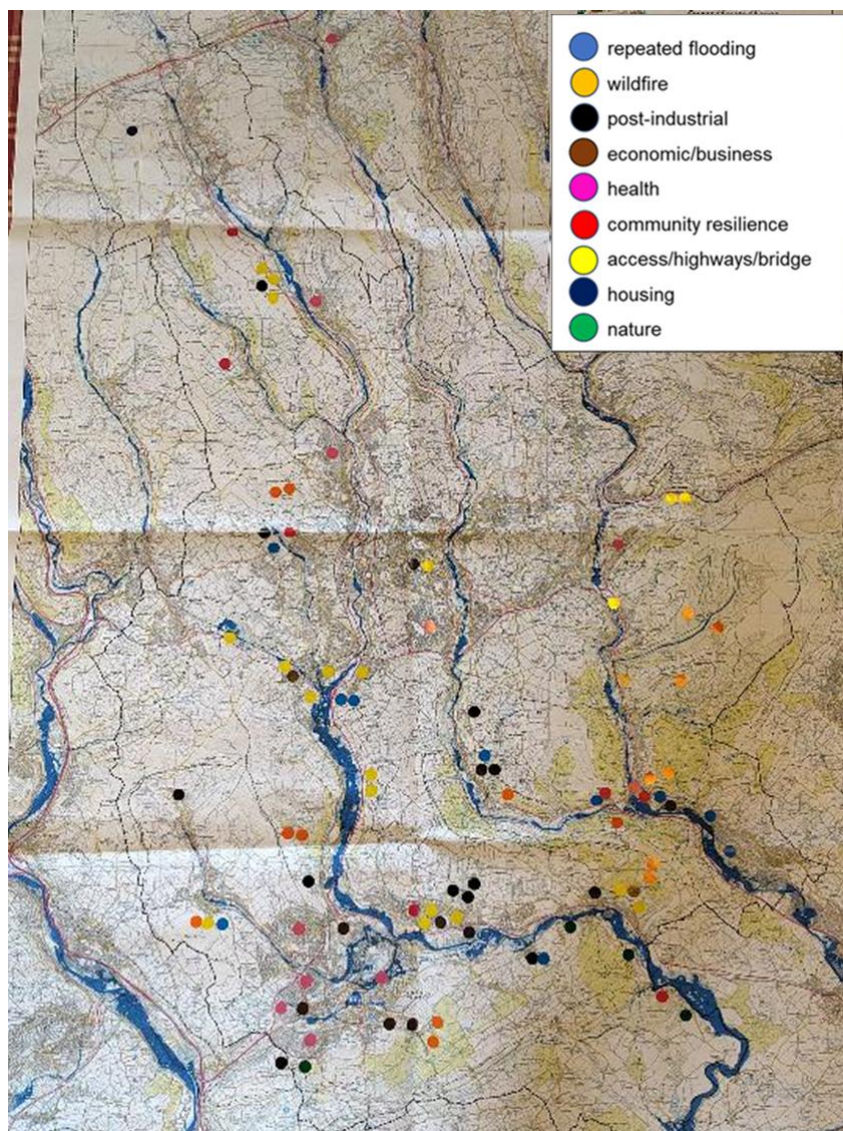
²² Caerphilly's Flood Risk Management Strategy and Action Plan (2024) and NRW's Flood Risk Maps for TAN 15 (2025) also indicate these communities and others across the Borough as being at increased risk from combinations of river, groundwater, and surface water flooding as a result of climate change.

for wildfire fuel load was seen as a major risk. The following locations were thought to be vulnerable to this: Bedwas, Cross keys, Cwm Carn²³, Cwm Darran, Full Moon, Gelligaer Common, Machen and Rudry Common.

g) Concerns regarding Caerphilly Borough's **natural environment** including **woodlands**, especially in the river valleys were seen as being susceptible to habitat degradation (e.g Cwm Darran), tree disease, increased threat of wildfire. Concerns were expressed about favourable conditions for **invasive species** in the Borough's watercourses, and impacts on **water quality** in Castleview Pond.

h) Some areas seen as being at risk in Caerphilly Borough are among the top 20 most deprived wards in the Wales Index of Multiple Deprivation- areas covering Bargoed, New Tredegar, Hengoed, Pontllanfraith and Caerphilly, Bedwas and Trethomas. It is highly likely that climate change will act as a risk multiplier for these and other vulnerable communities in the Borough.

h) In terms of combined risks, the map (below) indicates clusters of risks in **Bedwas, Caerphilly, Cross Keys, Risca and Ynysyddu**. It is recommended that detailed work on climate risk for these areas is undertaken.



²³ The work of Netherwood & Thomas (2019) on Climate Ready Gwent 'Lived Experience' focused on climate risks and adaptation challenges for Cwm Carn Forest, engaging with management partners and the local community.

4.10 MONMOUTHSHIRE Place-based Climate Risks

a) Major concern was expressed about the effects of **increased rainfall** on the County's' communities already experiencing more frequent flooding, with residential areas, road and bridges and utilities infrastructure affected by the Monmouthshire's rivers and tributaries, increases predicted in surface water flooding; and coastal flooding particularly on the tidal rivers in the County. With a 11% + increase in average winter rainfall predicted by the Met Office in coming decades with increases in storm surges on the coast, this is seen as a major challenge. Locations²⁴ were mentioned as already being particularly vulnerable and likely to experience more frequent flooding include Abergavenny, Cowleaze, Dingestow, Little Mill, Llanellen, Llanfoist , Llantillo Perthowey, Llantilo Crossenn, Mathen, Monmouth , Raglan, Rockfield, Skenfrith , Tintern and Usk. It was recognised that communities across Monmouthshire will need to be prepared for more frequent, impactful severe weather events, including flooding, affecting their homes, travel, and essential local infrastructure.

b) Monmouthshire's **highways and bridge infrastructure** is seen to be vulnerable from combined effects of increased flooding, inadequate drainage, ground movement, treefall, landslips and extreme periods of heat undermining road and bridge infrastructure with bridges experiencing scour from high river flows . The picture that emerged was one of likely repeated impacts on the A40, A465, A446, A472, A4042, A449, B4598 B Roads and unclassified roads County -wide. Access issues to health facilities were of major concern particularly in Abergavenny, Chepstow, Maindoff Court, Llanarth Court and Monnow Vale. Particular locations where transport network disruption is seen to be likely and more frequent include Abergavenny, Brockweir Bridge, Chepstow Old Bridge, Llanellen, Llanfoist Bridge, Trothy; Bettws Newydd, Llandogo, Llangibby, Monmouth on the A40; the Old Severn Bridge and Whitley.

c) Combined and repeated climate impacts on Monmouthshire's larger and smaller **settlements** were seen as likely to increase as the climate continues to change. Monmouth's experience in Storm Eunice focused discussion on how 'clusters' of short and medium term of risks, are likely to have cumulative impacts on the County's towns and larger villages as impactful severe weather events become more frequent . Combinations of repeated compromised road access; storm and flood damage to housing, inhibited access to food; lack of shade; drought stress to urban tree cover; the slow burn mental health impact on affected communities; and housing conditions (thermal comfort , air quality, damp) were seen as impacting on resident's wellbeing . Of clear concern was the risk of **isolated communities** being cut off repeatedly from support services and basic needs – Llangibby, Pencroesoped and Skenfrith were used as examples in discussions. It was acknowledged that many support systems will be increasingly stretched to support communities as climate impacts repeat.

d) Discussion also focused on business resilience, particularly of **town centres** and the ability for businesses to bounce back after repeated events, with increasingly compromised staff and customer access, damage to premises, supply chain disruption, impact on business income and problems in gaining access to insurance cover. The vulnerability of town centre businesses in Abergavenny, Caldicot, Chepstow, Monmouth²⁵ Tintern and Usk were discussed as was the ; reputational damage to tourism in Monmouth and potential impacts on tourism businesses along the Wye Valley. Increases in potential disruption to the County's industrial estates was also identified as a potentially at risk; specifically, the integrity of utilities infrastructure, road access and supply networks to Severn Bridge Industrial Estate and Newhouse Farm Industrial Estate near the coast; as well as smaller sites like Wanastow Rd Industrial Estate in Monmouth.

e) Repeated impacts on the integrity the **Public Rights of Way (PROW)** Network in Monmouthshire were seen as likely to increase maintenance costs, diversions, and impact on their use. Concerns were expressed about

²⁴ Monmouthshire's Strategic Flood Risk Consequence Assessment (2025) and NRW's Flood Risk Maps for TAN 15 (2025) also indicate these communities and others across the County as being at increased risk from combinations of river, groundwater, and surface water flooding as a result of climate change.

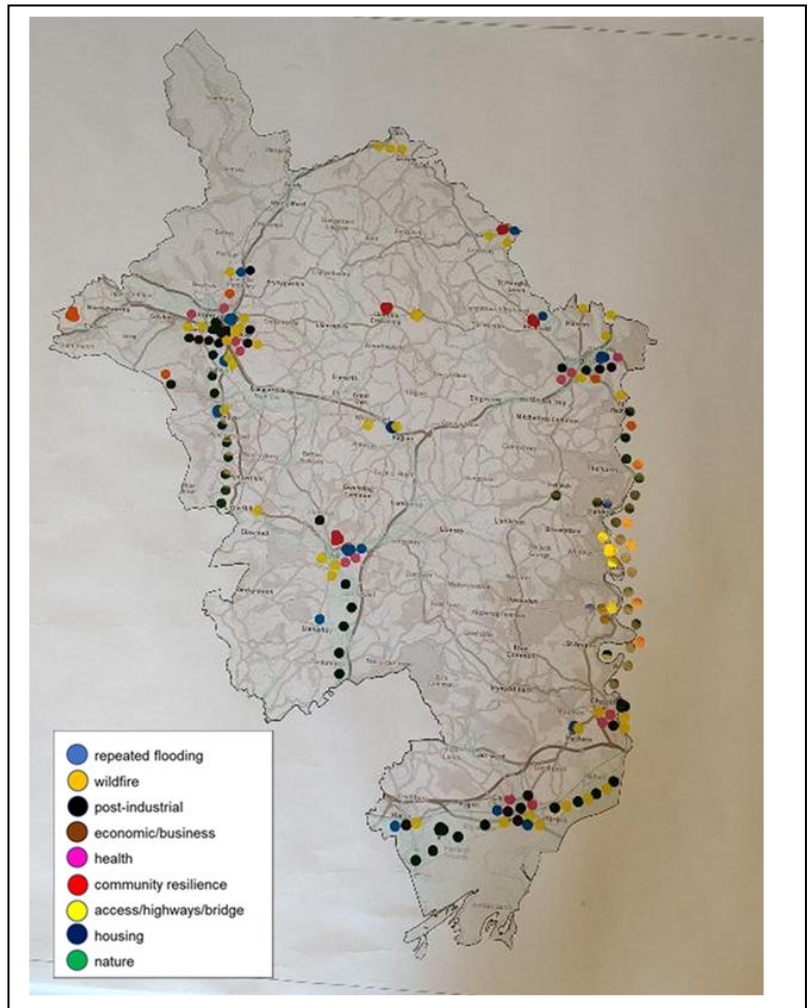
²⁵ The work of Netherwood & Thomas (2019) on Climate Ready Gwent 'Lived Experience' focused on climate risks and adaptation challenges for Monmouth, engaging with management partners and the local community. Detailed recommendations are made.

maintaining the integrity of Wye Valley Walk, Offa's Dyke National Trail , Wales Coast Path, and river footbridges on Monmouthshire's rivers as climate impacts increase.

f) Effective **wildfire management** for existing forestry, river valleys ,woodlands, grassland, and upland peat areas were raised as a major issue, likely to become more important as the climate changes . A lengthier drying season for wildfire fuel load was seen as a major risk. The following locations were thought to be vulnerable to this; the Blorenge above Llanfoist; Clydach on the edge of the upland; Llantilio Perthwey on the Deri Ridge near a residential area Wye Valley Woodlands and Wyesham.

g) Fluctuating water levels and the risk of bank degradation (from repeated wetting and drying), algal blooms and increasing costs of water were seen as key risks to **Monmouthshire & Brecon Canal**. Maintaining continuity of water abstraction was seen as critical to the Canal's viability, as the regions' water resources become stretched in a changing climate – concerns focused on Govilon and canal instability above Griffiths Business Civil Engineering Works Depot.

h) Managing the impact of climate change on the **Gwent Levels** was seen as a priority; maintaining the hydrology of the landscape; its biodiversity and heritage; protecting communities; ensuring farm businesses can function; preventing saline intrusion and maintaining access were all seen as major challenges. Increased intense rainfall, storm surges and extended periods of hot weather and drying are likely to impact the Levels, ecology, soils and water. Additional concerns regarding Monmouthshire's **natural environment** included bank erosion, habitat degradation and invasive species impacting bank stability on the Gavenney and in the Wye Valley south of Narth; soil loss from farmland at Llanccayo and Llanellen from increased rainfall and poor drainage; drought impacts on the County's wetlands; and salt marsh loss at Raglan.



i) In terms of combined risks, the map (above) indicates clusters of risks in **Abergavenny, Monmouth, Caldicot, Chepstow and Usk**. There was also a major emphasis placed on the climate resilience of the stretches of **Monmouthshire and Brecon Canal**, the integrity of the **Gwent Levels** and multiple impacts along **Wye River Valley**. It is recommended that detailed work on climate risk for these areas and assets is undertaken.

4.11 NEWPORT Place-based Climate Risks

a) Major concern was expressed about the effects of **increased rainfall** on the City and County's communities already experiencing more frequent flooding, with residential areas, road and bridges and utilities infrastructure affected by Newport's rivers and tributaries, increases in surface water flooding; and coastal flooding particularly on the coast and the tidal reaches of the Usk. With a 12% + increase in average winter rainfall predicted by the Met Office in coming decades, with increases in storm surges on the coast, this is seen as a major challenge. Locations²⁶ were mentioned as already being particularly vulnerable and likely to experience more frequent flooding include Caerleon, Duffryn, Llanwern Newport City Centre, Rogerstone as well as communities on the Gwent Levels both East and West of the city. It was recognised that communities across the County will need to be prepared for more frequent, impactful severe weather events, including flooding, affecting their homes, travel, and essential local infrastructure.

c) Newport's **highways and bridge infrastructure** is seen to be vulnerable from combined effects of increased flooding, inadequate drainage, ground movement, treefall, landslips and extreme periods of heat undermining road and bridge infrastructure with bridges also experiencing scour from high river flows. The picture that emerged was one of likely repeated impacts on bridge and road condition, particularly to maintain cross-city access, access to health facilities and deterioration of B, C, and unclassified roads County-wide.

c) Discussions on combined risks focused on **Newport City Centre Wards** including health impacts on the vulnerable from extreme heat in areas such as Baneswell, Pilgwenny, air quality issues in existing Air Quality Management Areas including The Coldra; impacting socially economic deprived areas in Malpas, Ringland, Bishpool and north of the city centre near Brynglas and Maindee²⁷. Duffryn was also seen as a socially deprived community that is vulnerable to multiple risks including repeated flooding and the impact of coastal erosion; and increased energy costs for cooling. Potential coastal erosion was also highlighted as a risk at St Brides, Wentloog.

d) Across **Newport**, the impact of climate change on **housing conditions** (thermal comfort, air quality, damp) and the additional costs for cooling in repeated extended periods of hot weather were seen as impacting on resident's wellbeing and health. Various impacts on the city's **green infrastructure** were seen as increasing including managing invasive species such as Japanese Knotweed and Himalayan Balsam in the city's parks; increased tree disease maintenance; drought stress on trees. For **businesses** likely risks were seen in relation to risks to business assets, increased insurance costs, business continuity issues due to disruption of supply chains and staff access to work sites – particularly in the city centre and on the Gwent Levels.

e) Discussion also focused on combined and repeated impacts on **Caerleon** in relation to residential flood damage; road access 'pinch points'; impeded emergency response; and the impact of repeated incidents on tourism footfall and visitor access; as well as damage to the historic assets in the area. Bridge integrity on Caerleon Road was also raised as a likely risk.

f) Managing the impact of climate change on the **Gwent Levels' landscape and communities** was seen as a priority; maintaining the hydrology of the landscape; its biodiversity and heritage; protecting communities such as Goldcliff, Whitson, Redwick and West Usk Lighthouse; ensuring farm businesses can function; preventing saline intrusion to maintain land quality and maintaining access were all seen as major challenges as the climate continues to change. Increased intense rainfall, storm surges and extended periods of hot weather and drying are likely to impact the Levels, ecology, soils, and water. The Levels are also seen as having a major role in preventing the impact of climate change on Newport, as an essential part of coastal defence for the city, minimising the impacts of more frequent storm surges, higher tide levels, and coastal erosion²⁸.

²⁶ Newport Flood Risk Management Strategy (2025) and NRW's Flood Risk Maps for TAN 15 (2025) also indicate these communities and others across the County as being at increased risk from combinations of river, groundwater, and surface water flooding as a result of climate change.

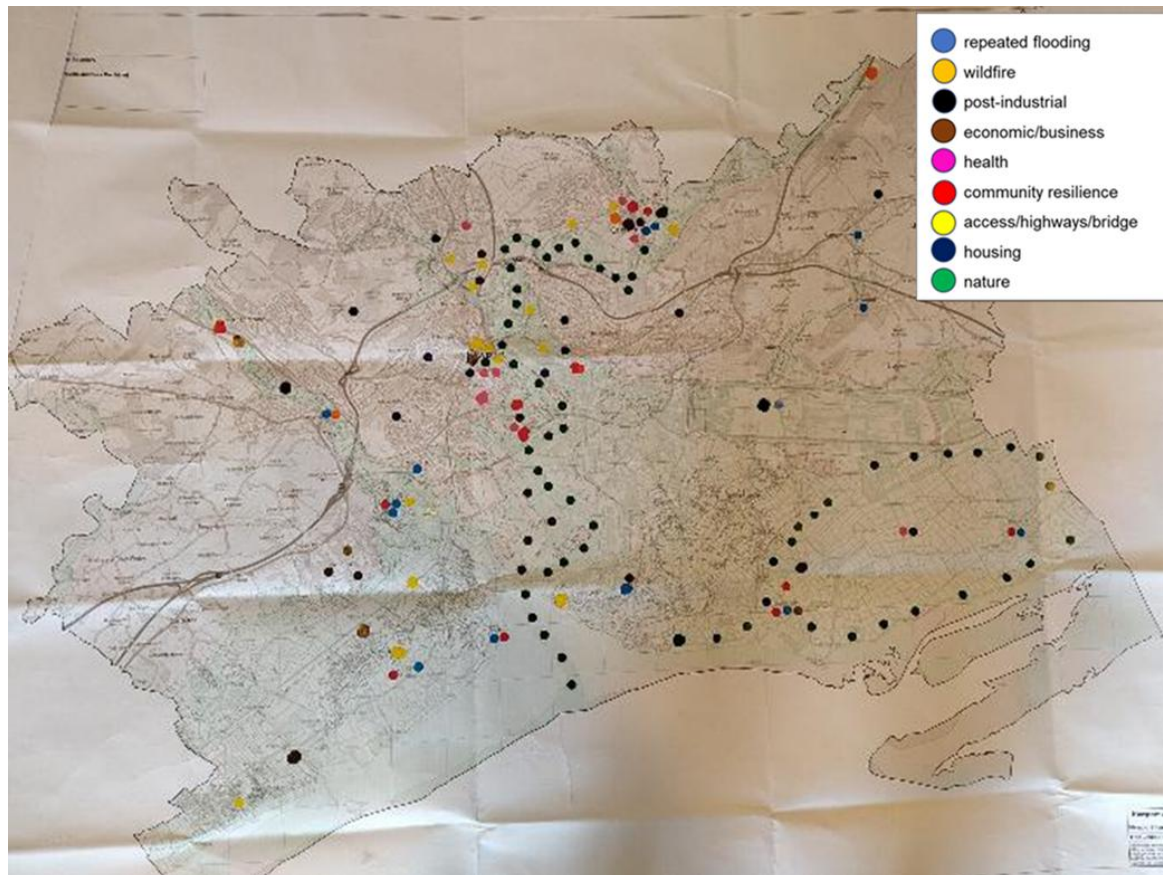
²⁷ Welsh Index of Multiple Deprivation (2025)

²⁸ NRW (2025) Gwent Levels. Mapping Resilient Ecological Network. Report No: 855

h) Concern was expressed about compromised business continuity for **Gwent Levels’ business’ sites** that are likely to be impacted by combinations of repeated flooding; extreme heat and erosion caused by climate change; with subsequent impacts on roads and utilities infrastructure serving businesses and assets in this location. These include Cleppa Park, Lamby Way, National Grid Centre and Wales and West business sites; and Llanwern in relation to potential dispersed pollution from contaminated land.

d) Climate risk for Newport’s **natural environment** included a deterioration of water quality from low river flows impacting on biodiversity in the Ebbw River, Usk River and at Uskmouth ; slope erosion at St Julian’s Nature Reserve; wildfire risk at Wentwood west of Pencae Mawr and Bassaleg. Repeated impacts on the integrity of the **Public Rights of Way (PROW) Network** in Newport were seen as likely to increase maintenance costs, diversions, and impact on its use. Concerns were also expressed about maintaining the integrity of the **Wales Coast Path** at Nash and cycle path integrity at Wentlooge

f) Fluctuating water levels and the risk of bank degradation (from repeated wetting and drying , algal blooms and the continued viability and increasing costs of water were seen as key risks to **Monmouthshire & Brecon Canal**. Maintaining continuity of water abstraction was seen as critical to the Canal’s viability, as the regions’ water resources become stretched in a changing climate – concerns focused on Malpas and the potential risks from canal structure failure on community safety and loss of an active travel route. The impact of climate risk on Ynysfro **reservoir** levels was also raised as a concern.



h) In terms of combined risks, the map (above) indicates clusters of risks in **Newport City Centre Wards**, in **Caerleon**, along the **Usk Valley** and on the **Gwent Levels** East and West of Newport . It is recommended that detailed work on climate risk for these areas is undertaken.

4.12 TORFAEN Place-based Climate Risks

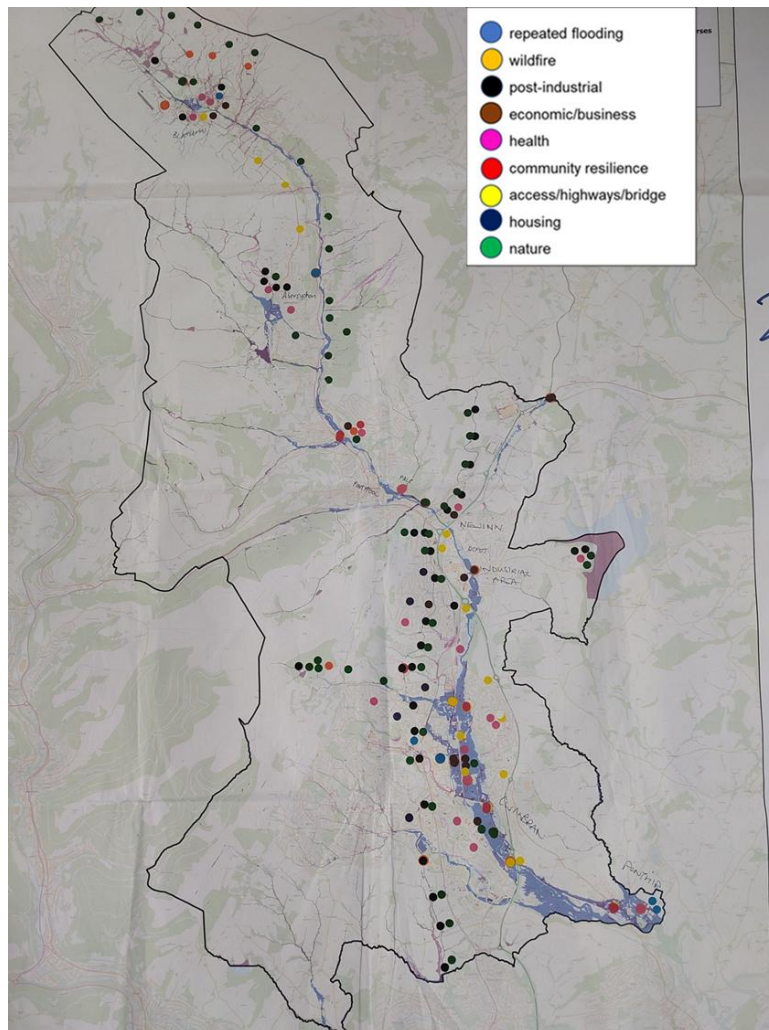
- a) The effect of changing climate conditions across the Borough's **post-industrial features** were of major concern, seen as potentially destabilising category C and D coal tips, other spoil tips, 'activating' contaminated land, impacting old mine workings and landfill, with increased likelihood of subsidence, changing groundwater levels and dispersed pollution. This, along with wildfire threat to spoil tip stability is seen as a priority for further investigation. Local examples discussed included **subsidence** at Blaenavon, from **dispersed pollution** from contaminated land, at Blaensychan Colliery, and **land slippage** at British Mountain
- b) Major concern was expressed about the effects of **increased rainfall** on the Borough's communities already experiencing more frequent flooding from Blaen Bran and Afon Llywyd,' where much of the housing, road and utilities infrastructure is located on the valley floors. With a 11% + increase in average winter rainfall predicted by the Met Office in coming decades this is seen as a major challenge. The following locations²⁹ were mentioned already as being particularly vulnerable. Blaenavon, Cwmbran, including Llanyfafon School, Ponthir and Pontnewydd. Communities across the Borough will need to be prepared for more frequent, impactful flooding affecting their homes, travel, and essential local infrastructure,
- c) Torfaen's **highways** and **bridge infrastructure** is seen as being vulnerable from the combined effects of increased flooding, inadequate drainage, ground movement, landslips and extreme periods of heat undermining road and bridge infrastructure. Repeated impact on the New Inn roundabout, the A4043, B426, other B Roads and unclassified roads Borough-wide were thought likely. Maintaining **slope stability** and minimising soil and vegetation loss, especially on the steeper slopes within the Borough were seen as critical issues, so that transport, utilities, infrastructure, and housing is not affected by landslips.
- d) Combined and repeated risks to the community and businesses of **Cwmbran** were highlighted in relation to flooding, compromised road access, storm and flood damage to housing, access to food, access issues for employees, thermal comfort in housing and damage to housing fabric. The locations of emergency services, Council depots access to public transport, schools and food retail were seen as being vulnerable to the effects of repeated flooding and subsequent disruption.
- e) For Torfaen's **housing** of all types, thermal comfort, air quality, damp and storm damage were seen as impacting on resident's health and disposable income. The effect of climate risk on the **health** of residents, particularly their mental health is seen as a current problem that is likely to increase as the landscape and communities are affected by combined climate risk from storm damage, an unstable landscape, increased flood, and wildfire risk. Concern about impacts on health assets such as Grange hospital and care homes in Cwmbran were raised. Impacts on **food security** were discussed for isolated communities across Torfaen, especially if B and unclassified roads become impassable. Parts of Cwmbran are among the top 20 most deprived wards in the Wales Index of Multiple Deprivation. It is highly likely that climate change will act as a risk multiplier for these and other **vulnerable communities** in the Borough.
- f) Access to **Blaenavon World Heritage Site** via Abersychan was seen as another major risk likely to have impacts on the site's income and the town's businesses, should this road be compromised. There were also concerns expressed about erosion and damage to the sites' heritage features³⁰
- g) Concerns were raised regarding Torfaen's **natural environment** including **woodlands** being susceptible to habitat degradation e.g. at Blaen Bron Community Woodland; from river erosion e.g. at Palc; the favourable conditions for invasive species and algal blooms in the Borough's watercourses and impacts on **water quality** e.g. Cwmbran (Boating Lake). The potential impact of wildfire on Blaenavon's common grazing land was also seen as a key risk.

²⁹ Torfaen Local Flood Risk Management Strategy and Action Plan (2025) and NRW's Flood Risk Maps for TAN 15 (2025) also indicate these communities and others across the Borough as being at increased risk from combinations of river, groundwater, and surface water flooding as a result of climate change.

³⁰ The work of Netherwood & Thomas (2019) on Climate Ready Gwent 'Lived Experience' focused on climate risks and adaptation challenges for Blaenavon World Heritage Site. The report provides detailed analysis of this issue.

h) A major focus of discussions was **business resilience across the Borough** and the inability for businesses to bounce back after repeated events with businesses in Cwmbran likely to experience increased flooding incidents (and their short -medium term consequences) impacting on business income, staff access, supplies, and insurance cover. The vulnerability of Grange Road Industrial Site, Little Mill Industrial Site, and New Inn Business Park and Council Depot were also highlighted as being vulnerable to flood risk, utilities resilience and compromised access.

i) Fluctuating water levels and the risk of bank degradation, algal blooms and the continued viability and increasing costs of water were seen as key risks to the **Monmouthshire & Brecon Canal**. Maintaining continuity of water abstraction at Pontnewydd (the location of one of the two canal feeders within Torfaen) was seen as critical to the viability of the canal’s southern section, and navigability through Cwmbran town centre, as the regions’ water resources become stretched in a changing climate. Concerns were expressed about the climate resilience of both the canal and land bridge integrity at Ty Coch; and for other key infrastructure ,the continued integrity of Llandedfedd Reservoir and sewerage infrastructure at Ponthir in the flood risk zone were raised ³¹ .



j) In terms of combined risks, the map above indicates clusters of risks in **Abersychan, Blaenavon, Cwmbran, New Inn, and Ponthir**. There was also a major emphasis placed the climate resilience of the stretches of **Monmouthshire and Brecon Canal** within Torfaen . It is recommended that detailed work is carried out on the climate risk for these areas and assets.

³¹ NRW monitoring is already required, however understanding the levels of risk and communicating this to residents who may be affected should reservoir infrastructure fail (from effects of combined heavy rainfall and drying) was seen as essential.

4.13 GWENT-WIDE PLACE -BASED RISKS – Building granularity going forward

a) Gwent-wide place based information on climate change, online research and signposting by participants only provided a few examples of detailed data on climate risks on specific places and assets in Gwent. The two main examples are local authority flood risk management strategies which provide detail on particular communities at risk from increases in combinations of river, groundwater, surface and coastal flooding under different climate change scenarios. This draws on NRW Flood Maps which sit alongside Technical Advice Note TAN 15 on Flood Risk and Development produced by Welsh Government in 2025.

b) This type of scenario work has also informed the priorities of Dwr Cymru/Welsh Water in forecasting supply and demand and investing in the water network across Gwent within its Water Resources Management Plan (2024) This considers the SEWCUS and Monmouth water resource zones using UKCIP 2018 climate projections focusing on drought resilience planning to 2039/40. It suggests low levels of resilience, a lack of available water storage in Gwent and Wales -wide problems with network connectivity to deliver water transfer to South East Wales. This information is informing its investment and business planning.

c) At a broader level Transport for Wales (TfW) have identified stretches of the railway network that are at particular risk from severe weather currently (lines to Caerphilly have experienced some disruption) and are embarking on further work to map vulnerabilities under different climate scenarios. Gwent PSB should engage with TfW to understand how emerging findings might impact on Gwent going forward.

d) Like Dwr Cymru and TfW, utilities companies such as Wales and West Utilities, Western Power Distribution and National Grid prepare annual reports on their *corporate* approaches to climate adaptation. Although engaged in this CCRA, they have not been able to provide Gwent level data or insights on local climate vulnerabilities within the time available. Getting a better understanding of locations of utility vulnerability is something the PSB should pursue during 2026 as part of its approach to climate adaptation.

e) NRW has undertaken work at a landscape level covering the Gwent area, focusing on habitats likely to be affected by 1m sea level rise and their juxtaposition with Flood Zones 2 and 3 (pre-2025 TAN15)³². This work provides data sets and maps for all 5 Gwent authorities but very little in the way of interpretation of individual sites at risk. NRW also produced a report in 2013 on Climate Vulnerability of Designated Sites in Wales³³ - this suggests that areas with SSSIs in Gwent that are particularly vulnerable to changing climate conditions are in three broad geographical areas – the Usk River Valley; the Wye River Valley and adjacent to the Severn Estuary.

f) CADW were approached for information about particular historical and archaeological sites in Gwent that might be at risk from climate change. They have online registers of listed buildings, scheduled monuments, protected wrecks, registered historic landscapes and world heritage sites, but no available listings of condition and they do not currently assess risk to these sites and assets. This is an area of work for the PSB to develop, there may be benefit in exploring funding for joint work on this issue.

g) There is also a regional knowledge gap on the potential impacts of climate change on post-industrial landscape features, as discussed throughout this report. Understanding potential place-based impacts on this critical issue should be pursued by the PSB with the Mining Remediation Authority, the Wales-wide Disused Mine and Quarry Tips Task Force and the Disused Tips Authority as it is established in the near future. Gwent needs to urgently understand its vulnerability on this issue.

h) The analysis above suggests that thinking about place-based climate risks by organisations from different sectors is limited to date. Quantitative data to inform our understanding at a Gwent level is also limited. However discussions with the GIS leads in December did indicate that relevant data is available via Datamap Wales, Ordnance Survey and within individual authorities to begin to explore spatial relationships between different climate risks identified in the CCRA. (See Appendix D for information on relevant data sources highlighted by the GIS leads).

³² NRW (2019) LANDMAP, Landscape and a Changing Climate. NRW Report No: 314.*

³³ NRW (2013) Climate Vulnerability of Designated Sites in Wales: Science Report 107

i) It is recommended that the PSB begin work to build up a more granular picture of climate risk from April 2026 by exploring questions and data sets which are pertinent to climate risks highlighted in this CCRA, including the following ‘sample’ questions, provided by the author;

how might social services recipients and social services delivery be affected by an increase in road and bridge closures across Gwent?

which B and unclassified roads are most likely to become untenable to maintain from repeated climate impacts?

which public sector assets and residential areas are at most risk of increases in grassland and woodland wildfire?

how many private water supplies are at risk from changing groundwater levels? How might this affect the farming and rural community?

which contaminated land sites and historical landfill might be compromised by combinations of heavy rainfall and drying?

which nature conservation designated sites are most at risk from climate change, compromising their original reasons for designation?

where are there co-located utilities that may be affected by ground movement, river scour and repeated flood damage?

which business and industrial sites are vulnerable to impeded access, utilities failure, landslip and wildfire?

which historical and heritage features in Gwent are most at risk from combinations of storm damage, heat and heavy rainfall?

which specific designated sites are most at risk from drought, low water levels and water quality issues?

which sections of the gas infrastructure network are vulnerable to ground movement and wildfire?

j) Climate change leads and GIS specialists, with the support of service colleagues, PSB partners could use this set of questions (or similar) as a stimulus for building up their knowledge of what data is available, its limitations; its sensitivity, while at the same time gaining insight into some of the critical questions raised by the CCRA.

k) This section has identified towns and communities and areas in each local authority where clusters of climate risks are likely to combine. These are the locations where partners in Gwent should focus their attention to develop a more granular view of how climate risks may combine and impact on well-being.

Table 6: Places to focus climate adaptation planning

Blaenau Gwent CBC	Caerphilly CBC	Monmouthshire CC	Newport CC	Torfaen CBC
Abertillery	Bedwas	Abergavenny	Caerleon	Abersychan
Cwmtillery	Caerphilly	Caldicot	Duffryn	Blaenavon
Tredegar	Cross Keys	Chepstow	Newport centre	Cwmbran
	Risca	Monmouth	Gwent Levels	New inn
	Ynysddu	Usk	Usk valley	Ponthir
		Wye valley		Mons Brecon Canal

j) Its recommended that further climate risk analysis should be undertaken with all of these communities and stakeholders, through a process of town or area level climate adaptation planning, either as part of existing discourse on place planning – or in new discourse with residents and partners. Approaches to engaging with ‘at risk’ communities is explored further in the next section of the CCRA.

5. DEEP- DIVES INTO CLIMATE RISK

This section focused on the key messages from five half day workshops focusing in detail on highways and bridge management; asset management; post-industrial landscape; communities at risk, and building resilience with local experts. These workshops examined the climate risks emerging from the CCRA in more detail, explored the sufficiency of current approaches, systems and processes in need of adaptation, and the service implications of climate risk.

5.1 HIGHWAYS & BRIDGE MANAGEMENT Deep-Dive

a) This workshop ran on Tuesday 3rd February to enable a deeper understanding of climate risks to the highway and bridge network and access across Gwent. Participants included transport strategists, highways planners, highways engineers; planning officers; highways maintenance; countryside managers; drainage managers and emergency planners³⁴.

b) The data collected in the CCRA in Section 3 indicated specific locations, stretches of the networks and particular assets where attendees felt the highways, bridge and public rights of way networks were vulnerable. Core themes emerging from workshop discussions were; increases in the frequency of disruption to town centres; isolated communities being ‘cut off’ and an increased rate of deterioration of these vital transport networks. It was felt that Gwent needs to be prepared for more disruption to this essential infrastructure, and plan to reduce the impacts of this on businesses, communities, and public services.

c) The deep dive focused in detail on road and bridge materials and fabric; environmental factors likely to impact on these assets; evidence needs to manage climate risk processes; and exploration of systems that underpin highways and bridge management and other networks. It concluded by focusing on what climate adaptation might help at institutional and regional levels.

Table 7: Climate risk factors for highways and bridges

<p>Road materials and fabric surface deterioration rate foundation deterioration rate high rainfall erosion -scour desiccation and cracking soil moisture fluctuations (vegetation) potholes sinkholes accelerated weathering/erosion</p>	<p>Environmental factors slope failure spoil tip failure embankment failure mine working collapse ground movement/ shrinkage and heave subsidence wildfire (damage/closure) tree fall frequency</p>	<p>vegetation loss (run off and slope stability) sea storm damage (coasts) inter-reliances with pipelines, IT and energy networks</p> <p>Bridge materials and fabric river flow – increased erosion rate debris damage foundation scour embankment drying sea storm damage on (coasts)</p>
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d) **Asset resilience** Particular concerns were raised about an increased likelihood of embankment failure; repeated flooding undermining surface materials and road foundations and the resilience of highways pinch points across the region. Inhibited access to repair infrastructure due to road ‘outages’ was also seen as a critical issue. Debris damage and scour to bridges; tree windfall from higher winds; the instability of footbridges on the PROW network were also highlighted. A lack of resilience of binding material used on roads and longevity of softscape solutions were cited as potential technical problems as the climate continues to change.

e) **Wider concerns** about coping in a changing climate included; the impact on the network of coal spoil tip slope failures; the ongoing degradation of highway road surface exacerbated by long term underinvestment; an ageing bridge stock and carriageway assets ; greater pressure on the workforce dealing with incidents and their after effects. Managers saw the need to maintain and develop the highly specialised knowledge required to react to the increasing and complex issues likely to arise and were concerned about the capacity and skills required

³⁴ A PDF of the PowerPoint developed by NSF to stimulate discussion in the deep-dive is available from Gwent PSB

(and consultancy costs) to undertake a greater volume of post-incident conditions surveys. Managers also saw a potential increase in legal liabilities, for example, the increased likelihood of technical breaches of the Water Framework Directive

f) **Evidence needs** that would help participants to manage climate risk included; understanding the condition and likely impact on C roads and unclassified roads particularly in rural areas (as focus, condition monitoring, prioritisation and funding tends to be on A and B Roads). Broadening the criteria for road condition assessment and associated indicators was seen as a critical way of gathering evidence to understanding the scale and nature of likely impacts – beyond current surface condition and drainage to include the immediate environs and longer-term effects of climate change. Technical information on the longevity and resilience of road surface materials was also seen as important

g) The deep-dive also focused the sufficiency of **critical processes or systems** and how they may need to adapt to climate risk. A common view was that climate risk had an extremely low profile in critical strategies and management plans, reporting and funding systems, highway maintenance plans. Highway asset management plans, annual service plans, apportionment reports do not currently factor in climate risk. This lack of profile inhibits corporate, service and partnership working on this issue. It was suggested that Highways Maintenance Plans focus on safety and minimising **liabilities** and delivering reactive work with a major backlog’ – but the scale of highways maintenance in a changing climate will be significant. Discussion also focused on how ‘outdated’ **legislation** can inhibit and undermine approaches to solving bridge and public rights of way issues.

h) In relation to finance, the pockets of **funding** available were seen to be inadequate for scale of issues involved. The focus of current approaches to funding, including the Welsh Government Resilient Roads Fund focus on priority routes, with narrow criteria. Highways funding is seen to be decreasing, with reactive work underfunded, stretched management and operational teams. Managers felt unable to find funding and time for proactive strategic work on climate risk.

i) Gwent’s leaders were also engaged on this issue³⁵. Key issues raised were; the scale of likely investment required to keep the network functioning; accelerated deteriorating road condition, difficulty managing public expectation given levels of available public finance. Their view was that expert advice would be needed on materials, techniques, solutions, the potential risk to rural economy from rural route loss. Their key conclusion was that the strategic focus on climate risk to these networks is limited to date and needs to change.

j) The deep-dive also focused on what effective **climate adaptation** might look like for the highways, bridge and public rights of way network. The following contributions reflect what local experts feel is needed to integrate and address climate risk in their work:

At an institutional level

- multi-disciplinary working within local authorities
- training for highways teams, service managers and finance
- ‘state of the asset’ reports include climate risk assessment
- financial scenario planning for functional failure of specific highways assets
- executive./cabinet/ committee/ scrutiny/ ward member engagement
- SLT and corporate management manage this as a strategic risk
- investing in staff with technical and local knowledge
- effective questioning in decision making
- combined asset management plan (built, land and highways assets)

At a regional/national level

- influencing WG to integrate climate risk into funding and strategy
- a regional forum to develop evidence, solutions, joint training, build capacity and seek funding on this issue
- increase in revenue funding to work strategically on this issue

k) A picture has emerged from this deep-dive of a highway, bridge and public rights of way network increasingly under strain in current climate conditions, which is likely to be severely impacted by combination of flooding, heat

³⁵ See Section 6 for further detail on the Leadership Seminars

and ground movement as a result of climate change. The implications of continued deterioration of an already vulnerable network on communities, public services and the local economy in Gwent is likely to be significant. This impact will be particularly acute for locations that are isolated and network ‘pinch-points.’ One participant suggested “ If we keep at current levels, [of climate adaptation] we will reach a point of failure.”

l) These insights from transport specialists provide strong indicators of a stretched system under current climate conditions, a system that is not addressing climate risks as a critical core issue in current discourse or future planning. The strategic approach to the issue needs to be strengthened and enhanced locally and regionally, Further risk assessment and adaptation needs to occur in Cardiff Capital Region under the Corporate Joint Committee function, by the PSB through joint work as suggested above, and critically within each local authority area, to integrate climate risk into their current decision-making and forward network planning. This work needs to engage Welsh Government, South-East Wales Trunk Road Agency, Public Rights of Way partnerships and other major transport network stakeholders.

5.2 ASSET MANAGEMENT Deep Dive

- a) This workshop ran on Wednesday 4th February to enable a deeper understanding of groups of assets and specific assets that may be at risk across Gwent; participants included asset and property management teams; planning and regeneration officers; those responsible for countryside and tourism management assets; service managers with a responsibility for assets; and those involved in managing community assets from the third and community sector.
- b) The data collected in the CCRA prior to this deep-dive indicated concerns around housing, schools, industrial estates, health and social services facilities, depots and sites of nature conservation importance. Key concerns included maintaining access to the assets, asset deterioration through combinations of intense rainfall, storm damage and extreme heat, and repeated disruption and maintenance costs.
- c) This deep-dive explored ways in which asset managers approach evidencing and managing the complexity of these impacts in different locations, for different asset types, across their broad property portfolios, were able to reflect and explore the complexity and breadth of Gwent's built and land assets. Drawing on NSF's recent work with Ystadau Cymru and the Future Generations Commissioner for Wales.³⁶
- d) Participants were encouraged to explore this complexity through a number of interactive exercises by consider risk to the assets themselves, the assets' environs, including adjacent, land and utilities and risks to the asset users, including staff, service users and visitors³⁷. They were asked about evidence needs, the systems and processes that 'sit behind' effective asset management and what good climate adaptation might look like for their discipline at institutional and regional levels.
- e) **Asset resilience**- particular concerns were raised about; the interconnectivity of different assets and the interliance on other systems to enable them to function, including road access, resilient utilities and effective drainage; the scale of the cost implications to 'climate proof' assets; and the difficulty of shifting from a reactive response approach to asset maintenance towards proactive planning for asset resilience. Asset managers felt they were already experiencing the early effects of climate change, dealing with thermal comfort issues in schools ;the aftermath of more frequent flooding; increasing disruption to business continuity. It was felt that each consecutive event erodes resilience while, at the same time there is increased pressure on public bodies to respond . A major concern was that older asset deterioration will speed up through combinations of increased heavy rainfall and extended hot dry periods.
- f) **Evidence needs** raised were to understand the climate resilience issues for each asset, and to adapt condition report/suitability assessments so that they consider a broad set of climate risk issues, particularly potential impacts on assets by the loss of interdependent services. Evidence needs included more intel on the assets' inter-reliances with supporting systems, including gas, water, electricity and the drainage network; the assets' environs, including slope stability, treefall, groundwater levels, historical land activities (in related to land contamination); and locations where nature based solutions to address shade or flooding might help. It was felt that managers need to be able to understand the structural integrity of assets medium to long term from repeated impacts. Having this type of information would help managers to explore maintenance and upgrade costings; consider technical details, for example cooling, and explore options for building fabrics and materials.
- g) The deep-dive also focused on the sufficiency of **critical processes or systems** and how they may need to adapt to climate risk. The experts engaged in this deep dive felt that there was currently insufficient focus on climate risk throughout their approaches to asset management, strategy, condition monitoring and decision making³⁸. A stronger emphasis on this issue in strategic planning guidance and sites master planning was seen as critical going forward alongside senior leadership buy in and support to address climate risk more fully in decision-making

³⁶ <https://www.gov.wales/sites/default/files/publications/2026-03/ystadau-cymru-newsletter-edition-12.pdf> (page 8 refers to be a paper due for publication by OFGC in April 2026)

³⁷ A PDF of the workshop PowerPoint developed by NSF to stimulate discussion in the deep-dive is available from Gwent PSB

³⁸ Newport CC do have climate risk as a standing item on the agenda of their Asset Management Group

h) In relation to asset management **funding** it was felt that current funding systems inhibited managers' ability to focus on climate risk. In their view Welsh Government funding pots have no requirement, allocation or allowance for addressing climate risk. Current funding and the way it is used provides limited opportunity for Gwent's asset managers to explore this area of work and respond at a strategic level to this critical issue.

i) Gwent's **leaders** were also engaged on this issue³⁹. Their discussions focused on the complexity of the technical aspects of these risks; that it was inevitable that some assets cannot be protected, and decisions would need to be made on what to let go. They were concerned about how to manage a gradual decline across property portfolios and the fact that they would need to engage in more frequent contested decision making, within their institutions and with public service users and partners. Other key points of discussion were the liabilities that might occur from asset failure, and the legal constraints which might inhibit and delay effective adaptation.

j) The deep-dive focused on what effective **climate adaptation** might look for Asset Management in Gwent. The participants were able to identify what could be done at an institutional level and what is needed at national and regional levels

At an institutional level

- multi-disciplinary joint working within local authorities
- through strategic and corporate asset groups focusing on climate risks to highways, maintenance, regeneration, education and heritage
- a strategic asset plan including-joined up planning of preventative infrastructure improvement and management.
- includes clear overview of areas of climate risk, how these are being managed
- a joined-up asset management plan for buildings, land and transport networks including PROW and to 'flex' to pursue funding opportunities

At a regional/national level

- A coordinated Gwent-wide asset management group to provide one strong voice putting the funding cases forward to government. The group would:
- build/share evidence and solutions and communicate the scale of work to do to future proof built and land assets
- develop options for adaptation, business case for investment, lobbying WG for joint funding.
- developing granular evidence base on risks
- stronger emphasis in bids for WG funding
- influence on the corporate joint committee work on strategic development and transport planning

k) These insights from asset specialists provide strong indicators of a stretched system managing a diverse asset portfolio under current climate conditions, a system with a backlog of maintenance needs, with limited fragmented funding. Asset management is not currently addressing climate risks as a critical core issue, either in current discourse or related to future planning. The strategic approach to the issue needs to be strengthened and enhanced regionally by the PSB, through joint work as suggested above, and critically within each local authority area, to integrate climate risk this into their current decision-making and forward thinking on the assets that are highly likely to be impacted.

³⁹ See Section 6 for further detail on the Leadership Seminars

5.3 POST-INDUSTRIAL LANDSCAPE Deep-Dive

a) This 2.5 hr online workshop was run on Thursday 5th February 10-12.30 to enable a deeper understanding of the complex risks involved in managing climate change impacts across the post-industrial landscape of Gwent. Participants included public sector managers with an understanding of spoil tip management; contaminated land; water pollution; mine-workings; subsidence, slope stability; tip remediation; impacts on assets/highways; post landslip management (impacts on essential infrastructure; and emergency planning).

b) The data collected in the CCRA prior to this deep-dive indicated concerns particularly in Blaenau Gwent, Caerphilly and Torfaen on the potential for repeated intense rainfall and extended periods of extreme heat destabilising category C and D coal tips, other spoil tips and subterranean features; ‘activating’ contaminated land; impacting old mine workings and landfill, with increased likelihood of subsidence; changing groundwater levels and dispersed pollution. This along with wildfire threat to spoil tip stability and historical landfill was seen as a priority for further investigation.

c) Participants engaged in interactive exercises⁴⁰ which focused on characteristics of effective future planning for the activation and deterioration of the post-industrial landscape; and managing the cascading risks that occur as a result of this. They also focused on systems and processes that are critical to addressing these concerns, evidence needs and what good climate adaptation might look like at institutional and regional levels.

d) In relation to **activation/deterioration of post-industrial industrial landscape** features much more work needs to be done to understand effects of climate change on the stability of Gwent’s coal and spoil tip ; locations where slope integrity may be undermined resulting in landslides; areas of potential ground movement and heave affecting utilities infrastructure; the instability and vulnerability of historic and current landfill, Further work is needed to understand the effects of climate change on contaminated land sites and mine workings in relation to hydrology and dispersed pollution; potential areas where there is an increasing risk of subsidence and sinkholes; wetting and drying impacts on canal bank stability and reservoir bank stability. Spoil tip vulnerability to wildfire and wildfire impacting on coal soil deposits and coal seams were of particular concern.

e) It was felt that, more consideration needs to be given to the **cascading risks** that are likely to occur from the above on transport infrastructure including roads, bridges, rail lines; utilities including gas, sewerage and water pipelines and electricity and IT cables; also in relation to environmental quality, including soil, water and air, biodiversity and vegetation loss; on built infrastructure including residential areas and schools; on the economy, including the housing market, and public finances; and its impact on social deprivation.

f) **Reacting to the scale and scope of the ‘problem’** Attendees were concerned about the scale and scope of the issues involved and the capacity of public bodies to develop localised evidence and plan forward for climate impacts. Concerns were expressed about the availability of expertise to assess risk for individual sites; the impacts on emergency response and LRF’s capacity to cope; the ability of maintenance teams to address risks as they occur; and the sufficiency of existing funding mechanisms to enable effective short, medium and long term responses to these impacts. Specific issues of concern were:

- the scale of potential impacts from contaminated land
- impacts on water quality and biodiversity as part of river restoration plans.
- the need to consider risk multipliers (e.g wildfire impact on vegetation reducing slope stability)
- the effect of extended dry / hot periods on canals, reservoirs, natural slopes, coal tips
- likelihood of pollution from historic metal mines, dissolved metals and sediments entering river systems.

It was highlighted that this is an areas of work where there is no proactive programme or funding and no single organisation has overall responsibility. The governance, responsibilities and liabilities around this issue is seen as problematic.

⁴⁰ A PDF of the workshop PowerPoint developed by NSF to stimulate discussion in the deep-dive is available from Gwent PSB

g) **Wales-wide funding and focus** Attendees reflected on the broad Wales level response to the industrial legacy, suggesting that the funding to deal with legacy of coal mining is tiny in relation to the potential impacts; that flood management funding is focused on properties, not infrastructure and post-industrial features; and that no current funding is available to investigate or remediate issues of historical landfill, or contaminated land. Attendees suggested that the work of the Mining Remediation Authority monitoring the condition of category C & D should be improved to factor in climate risk and should also be central part of the work of the Disused Mine & Spoil Tips Authority due to begin work in 2027.

h) **Addressing knowledge gaps** It was felt that local authorities had existing local expertise on contaminated land in environmental health and planning teams (officers also regularly meet on a Gwent basis) but no central database of information on this issue and a lack of officer time available to work strategically on this issue. Officer time is already stretched dealing with planning approvals. It was felt there were major knowledge gaps that need to be addressed on sites which may prove to be problematic in relation to historic landfill, mine workings and contaminated land.

i) Contributions also focused on the sensitivity of working on this agenda at a **community level** on residents, settlements, assets and places at risk from these changes, focusing on careful messaging; community training on warning/ safety measures; engagement with landowners; by local communities helping to fill local knowledge gaps. Considering risks to these sites and local features were seen as being critical for effective town and place planning.

j) Gwent's leaders were also engaged on this issue ⁴¹. They saw a need to re-evaluate risk profiles of communities in relation to these risks. They were particularly concerned about liabilities from sinkholes and sewer collapse and the impact on local water tables on contaminated land and historical landfill. Their other main focus was on potential impacts on designated and historical landscapes; and the integrity of stretches of the Monmouthshire & Brecon Canal and Gwent's reservoirs.

k) The deep-dive focused on what effective **climate adaptation** might look like for this issue. Participants were able to identify what needed to be done at an institutional level and what is needed at national and regional levels:

At an institutional level

- a joined-up organisation-wide approach to climate risk on these features
- factor in climate resilience into planning and decision making.
- more officer time to apply for funding and to deliver remediation schemes.
- frank conversations with elected members re community safety
- strategic planning by SLT and Cabinet
- service integration by service managers

At a regional/national level

- a Gwent- wide platform, framework and process to combine expertise would be welcomed.
- more joined up inter authority approach
- regional plan for slowing the flow and moving water off land
- working with Aneurin Bevan Health Board and Public Health Wales on the mental health needs of affected communities.
- a scaled up strategic response to wildfire in vulnerable post-industrial areas

l) These insights from specialists in their fields, paint a picture of a fragmented approach to managing the post-industrial legacy across Gwent's landscapes. Funding is scarce. There is a reactionary response to incidents occurring as severe weather affects post-industrial features. There are knowledge gaps and no programmes of proactive management at present to ensure climate risks are addressed for these features across the region. Like the other deep-dives, the strategic approach to the issue needs to be strengthened and enhanced regionally by the PSB through joint work as suggested above, and critically within each local authority area, to integrate climate risk this into their current decision-making and forward thinking.

⁴¹ See Section 6 for further detail on the Leadership Seminars

5.4 COMMUNITIES AT RISK Deep Dive

- a) This session was run on Tuesday 10th February 10-12.30: to enable a deeper understanding of how public and third sector partners might work with ‘at risk’ communities across Gwent. These are communities which in the future might be experiencing a wide range of effects from repeated events which are severely undermining the ability of residents to maintain their wellbeing, where public services and third sector support is stretched . Participants included public and third sector staff working in community development, social inclusion; anti-poverty; community level projects; regeneration teams and those involved in place-planning.
- b) Participants were reminded of the key infrastructural, community level, economic and environmental risks emerging from the CCRA to date and locations of concern. They were introduced to the principle that some communities will be able to bounce back repeatedly; others will need to adapt to a new normal; and some are likely to face existential risk from climate change. Participants then shared their concerns about working in this space, explored different stages of working with at risk communities. Finally, they participated in an exercise using a fictitious community ‘*Pontillery*’ to explore how an ‘at-risk’ community might be engaged, help to assess local risk, and plan and deliver adaptation alongside public and third sector bodies.
- c) **A complex message** Attendees’ initial concerns of working with communities at risk focused on the complexity of communicating climate risk honestly and sensitively to enable residents to engage with the issue. It was recognised; that the skills to do this needed to be developed in local government and the third and community sector; and that the limited profile; and lack of awareness of the issues by elected members, residents and local authority officers involved are barriers to effective engagement.
- d) **Providing agency and managing expectations** It was felt that any process of engaging at risk communities had to provide a sense of agency to those being impacted, and empower them to plan ahead even in difficult circumstances, while at the same time, managing their expectations of the ability of the public sector to protect them from repeated climate impacts (through flood risk works, highways maintenance; managing slope stability).
- e) **Political and social discourse** Concerns were expressed about the difficulty of engaging with climate change denial at individual, elected member, public sector officer and political party levels. This is an added complication to effective engagement of ‘at risk’ communities and broader messaging on climate risk and adaptation.
- f) Gwent’s **leaders** were also engaged on this issue⁴². Their view was that any communication would need to be honest, up-front communication backed by evidence, with a careful description of negative impacts for individuals, families and communities. They felt that climate change denial would require specific messaging. A key component of engagement would be honest conversations regarding cost analysis of climate change adaptation schemes and the limitation of public sector support available. A key concern they saw ‘as the pressure mounts’ is that there may be an increased ‘fracturing’ of relationships between communities and service providers. This would need careful management.
- g) **Pontillery Scenario** Participants were introduced to a staged approach to working with communities on climate risk drawn from NSF & WBPs’ work with Pembrokeshire PSB on a Community Climate Risk Protocol⁴³. Participants were invited to explore each stage in relation to Pontillery that is experiencing the cumulative impacts of different climate risks and to identify the types of inputs and outputs that would be needed at each stage of this process of engagement⁴⁴.
- g) This exercise enabled deep-dive participants to focus on how climate change risk assessment could be approached at a settlement or place- based level, how initial engagement might lead to affected communities being involved in contributing to an understanding of local risk and adaptation planning.

⁴² See Section 6 for further detail on the Leadership Seminars

⁴³ <https://www.pembrokeshirecoastalforum.org.uk/wp-content/uploads/2020/01/Pembrokeshire-Climate-Risk-Protocol-Report-March-2023.pdf>

⁴⁴ A PDF of the PowerPoint developed by NSF to stimulate discussion in the deep-dive is available from Gwent PSB This provides detail on this scenario and the Pembrokeshire Climate Risk Protocol work

Table 8 :Pontillery Climate Risk Assessment Stages

What inputs would you need?	What outputs would be achieved?	What would good look like?
<p>STEP1 INITIAL ENGAGEMENT Starting to engage the community in dialogue on climate risk</p> <ul style="list-style-type: none"> maps of buildings, infrastructure, community 'makeup' and risks community insights practice from elsewhere intel on past severe weather guidance on aims expert local opinion on infrastructure honest dialogue 	<ul style="list-style-type: none"> understanding of how risk is perceived evidence to show what issues have happened so far testimony of real-life experiences to provide insight into community needs 	<ul style="list-style-type: none"> willing to participate further understanding of potential impact and risks agree pathway to next step increased trust understanding of roles
<p>STEP 2 LOCAL RISK ANALYSIS Detailed examination of localised risks, vulnerabilities and solutions</p> <ul style="list-style-type: none"> asset maps and condition assessments historical data - previous management plans; past projects -learning cross directorate local authority input location of occurrences, severity of impact. local data on health, flooding, road repairs and demographics climate change predictions social vulnerability maps 	<ul style="list-style-type: none"> prioritisation graded risk score - colour coded (red, amber, green) comprehensive data sets identified information gaps visual on areas that have high risk of impact 	<ul style="list-style-type: none"> beginnings of an action plan detailed and succinct. staff time to engage physical copy of the outcome
<p>STEP3 ADAPTATION PLANNING Thinking about ways of building resilience in the community</p> <ul style="list-style-type: none"> manageable steps options appraisal feasibility studies roles / responsibilities / ownership. resources required (time, money) funding commitments. 	<ul style="list-style-type: none"> action plan with key milestones prioritisation of actions resources available actions with assigned responsibility and timescales 	<ul style="list-style-type: none"> buy-in from key stakeholders clear priorities, action plans, milestones, time frames, accountability. public bodies service area buy- in realistic, pragmatic, honest plan

h) The deep-dive also focused on what effective **climate adaptation** might look like for communities at risk. Attendees had the following suggestions:

At an institutional level

- multi-disciplinary working within local authorities
- local political leadership
- adaptation part of strategic and budgetary considerations
- climate adaptation a cornerstone of decision-making
- operational planning for adaptation across council focused on priority areas
- strong links between officers and community groups/champions around climate planning
- place-based climate resilience plans for most 'at risk' communities and locations

At a regional/national level

- regional approach to adaptation with long term regional funding
- coordinated actions across county boundaries.
- influencing WG to integrate climate risk into funding and strategy
- solutions are being implemented
- communities feel empowered
- communities understand
- strong place-based adaptation planning.
- focus on priority communities

i) These exercises engaging specialists working in communities, provided insight into the complexity of engagement and communication; the current unpreparedness of communities and public services to address

climate risk; the need to develop new skills to deal with existential risk to communities; and the difficulty of political and social discourse.

j) PSB partners can use this material to stimulate discussions about what their approach to 'at risk' communities might be, given the wide variety of service functions that are going to need to be brought together to address combined risk in different localities.

5.5 BUILDING LOCAL RESILIENCE Deep Dive

a) This session on Thursday 12th February examined how partners' current approaches to risk management, business continuity planning and local resilience work across Gwent may need to evolve and adapt to consider and cope with repeated, cumulative climate impacts. This focused on operational, institutional, and strategic risks and adaptation. Participants included local resilience managers; those actively involved in gold, silver, and bronze emergency response; corporate risk managers, service managers regularly impacted by emergency planning and third sector partners providing support to communities.

b) Participants were reminded of the key infrastructural, community level, economic and environmental risks emerging from the CCRA to date and locations of concern. They were introduced to the principle that different communities will experience climate risks in different ways, some able to bounce back repeatedly; others will need to adapt to a new normal; and others are likely to face existential risk from climate change. Attendees then engaged in facilitated exercises⁴⁵ to examine the sufficiency of current approaches to resilience and risk planning to address climate change.

c) These included UK National Risk Register (2025)⁴⁶ and Wales Resilience Framework (2025)⁴⁷ alongside Gwent's Community Risk Register (online 2026) and corporate risk management across the PSBs partners⁴⁸. A clear picture emerged from this deep dive that none of these mechanisms currently factor in the longer-term impacts of climate change; its multiple and combined risks and cumulative effects. Attendees concurred that current risk and resilience planning approaches, driven by UK and Wales level frameworks are focused on responses to individual events and short-term recovery. Corporate and service risk planning is also seen as insufficient to capture the scale and nature of risks at present, including those with climate change on their risk registers. The following sections provide expert insights from attendees on this gap.

d) At a UK level, climate change is treated as an environmental 'chronic' risk alongside 63 other specific 'acute' risks. A chronic risk is something in emergency planning terms is a 'continuous challenge making acute risk more likely.' In effect it acknowledges climate change as a risk amplifier for wildfire, storm frequency heatwaves, coastal flooding, fluvial flooding, drought. It does not explore the relationship of climate change to other core risks including geographic risks; accidents and system failures; human health and animal health; societal risks or conflict and instability. Attendees suggested that this does influence the frame of corporate risk planning across Wales.

e) The Wales Resilience Framework driven by the WG National Security and Resilience Division seeks to 'improve current systems' to address 'whole society' risk through civil contingencies registers and the activities of LRF's across Wales. It is firmly focused on the role of Welsh Government and closely aligns with the UK Register. The Framework has no specific reference to climate risks. Attendees suggested that it does not address climate adaptation needs. The Wales Community Resilience Group attached to this Framework help communities prepare for emergencies. Participants stated that the "adaptation side of climate change does not fit into this."

f) Gwent's Community Risk Register focuses on human welfare, environment and security through emergency response; dealing with infectious disease (human); severe weather; flooding; industrial accidents; disease (animal), transport incidents, and malicious threats. It is not set up to or required to deal with longer-term risk management, cumulative or combined risks. Its focus is to respond to individual events. Participants stated that the legislation is prescriptive in relation to what they work on and that this does not include increased levels of climate risk.

g) At an institutional level NSF reviewed corporate risk registers from the 5 Gwent Local Authorities and Aneurin Bevan UHB to understand how they framed climate risk in preparation for the deep dive and presented an

⁴⁵ A PDF of the PowerPoint developed by NSF to stimulate discussion in the deep-dive is available from Gwent PSB

⁴⁶ <https://www.gov.uk/government/publications/national-risk-register-2025>

⁴⁷ <https://www.gov.wales/sites/default/files/publications/2025-05/wales-resilience-framework-2025.pdf>

analysis of this to attendees. This showed no profile for climate risks in in the majority of registers and the ones that did contain climate risk,(Caerphilly and Monmouthshire) provided very little detail on risk management approaches to address climate change.

h) Discussions suggested climate change and associated risks are risk multipliers for organisations across their other risks related to infrastructure, social care, community welfare, environment, economy – this is not recognised in current approaches to corporate risk management . In relation to business continuity this often sits with emergency planning teams –which, as previously discussed, do not look at future impacts – but focus on learning for the organisation from individual severe weather episodes, Risk and business continuity is also dealt with at a service manager level, for example school building vulnerability. Attendees suggested that to their knowledge the types of risks discussed in this CCRA are not considered across service level risk management or business continuity processes. This needs to be addressed.

i) Gwent’s leaders were also engaged on this issue⁴⁹ . Their view was that partners need to develop skills for collaborating with communities that become untenable due to combinations of climate risk. They also identified a need to higher -level longer term and broader approach to climate resilience planning alongside and in addition to Local Resilience Forum activity.

j) In the author’s view this deep-dive suggests a significant and important gap in treating climate risk as major influence on the ability of organisations to deliver their services and for the wellbeing of Gwent’s communities. UK and Wales level systems do not help. They inhibit broader and longer- term thinking. Discussions throughout the CCRA suggest that LRF teams and PSB partners are just about managing to cope with more impactful severe weather events in Gwent. This will get more frequent and impactful in the next twenty years. Gwent’s partners need to plan for this now.

k) It is recommended that Gwent PSB set up a task and finish group to explore this issue further with corporate risk managers, LRF and climate change leads in discussions with Wales Resilience Partnership WG National Security and Resilience Division – with the aim of identifying a method for public bodies to adequately reflect and address the scale of potential climate impacts on public sector delivery and community wellbeing. In doing so, this may help to drive investment in some of the evidence gathering, corporate adaptation and partnership work discussed elsewhere in this document

⁴⁹ See Section 6 for further detail on the Leadership Seminars

6. LEADERSHIP ON CLIMATE ADAPTATION IN GWENT

6.1 Participants throughout the CCRA consistently referred to the need for leadership to address climate risk effectively. They view lack of leadership in dealing with the climate risks emerging from this work is a risk amplifier; whereas they see strong leadership being required to deal with the scale and gravity of the impacts and risks that are likely to arise from a changing climate in Gwent.

6.2 This section explores these issues in the light of outputs from three Climate Risk Leadership Seminars which were offered as part of the CCRA to engage senior decision makers from PSB and partner organisations, including , executives, cabinet members, and members of senior leadership teams, committees and boards. Each was designed to build on the last, using bespoke material⁵⁰ to stimulate discussion, to increase the capacity of attendees to lead effectively on this agenda. The intention was that this would enable Gwent's leaders to begin work on climate adaptation quickly, post CCRA, fully aware of the issues involved, seeing their roles as central to building climate resilience. This engagement also gave the CCRA important insights into how climate risks were perceived by senior decision makers and what priorities they felt needed to be addressed. In total there were 50 attendees at the leadership seminars with 39 individuals involved.

6.2 Leadership Seminar 1 INTRODUCTION TO THE CCRA ran at the University of South Wales, on 4th November 2025 briefing attendees on climate projections; learning from CCRA's elsewhere; exploring strategic, institutional, operational and community level concerns/opportunities; understanding Gwent's current capacity for adaptation; and exploring leaders' roles in policy, advocacy, action and governance. There were 16 participants including Directors, Heads Chief Officers covering strategy, finance, estates, facilities, and operations, one Deputy CEO and a range of managers covering assets, health, sustainability and climate change⁵¹. They explored a number of leadership scenarios –working in different arenas: risk management; highways investment; social services; assets; and communities at risk.

6.3 Leadership Seminar 2 CLIMATE RISKS ran online on 25th February 2026, helping attendees to explore the *emerging data from the CCRA*, was attended by 15 participants with roles as CEOs, Deputy CEO , Executive and Cabinet Members; with Director, Heads, Chief Officers attending from roles related to assets, finance, strategy and risk, health, regeneration and regional economic development, and town and community councillors. This spread of roles and organisations provided multiple perspectives on priorities. They were asked questions: What are the priorities that need to be managed through your portfolio of work, ? What might you need to do differently as a leader in this space? Are their current examples of something you can do immediately to work on climate risk?

6.4 Leadership Seminar 3 CLIMATE ADAPTATION ran online on 4th March 2026 and focused participants on climate adaptation leadership *in response to the CCRA*, exploring what effective leadership and interventions might look like at strategic, institutional, operational , institutional, community and PSB levels. This provided important information on adaptation priorities. There were 19 participants including 2 CEOs, Cabinet and Committee Members, Chief Officers and Directors⁵². They were asked to identify adaptation priorities for Gwent at an institutional level and explored what the role of the PSB might be on climate adaptation.

6.5 NSF was also able to engage directly with leaders in discussions with Gwent PSB Scrutiny Committee and at Gwent PSBs meetings – in December to update leaders on the project and March prior to reporting. NSF also briefed Torfaen CBC cabinet group and the senior leadership team in Blaenau Gwent CBC to orientate leaders on the CCRA as part of the project.

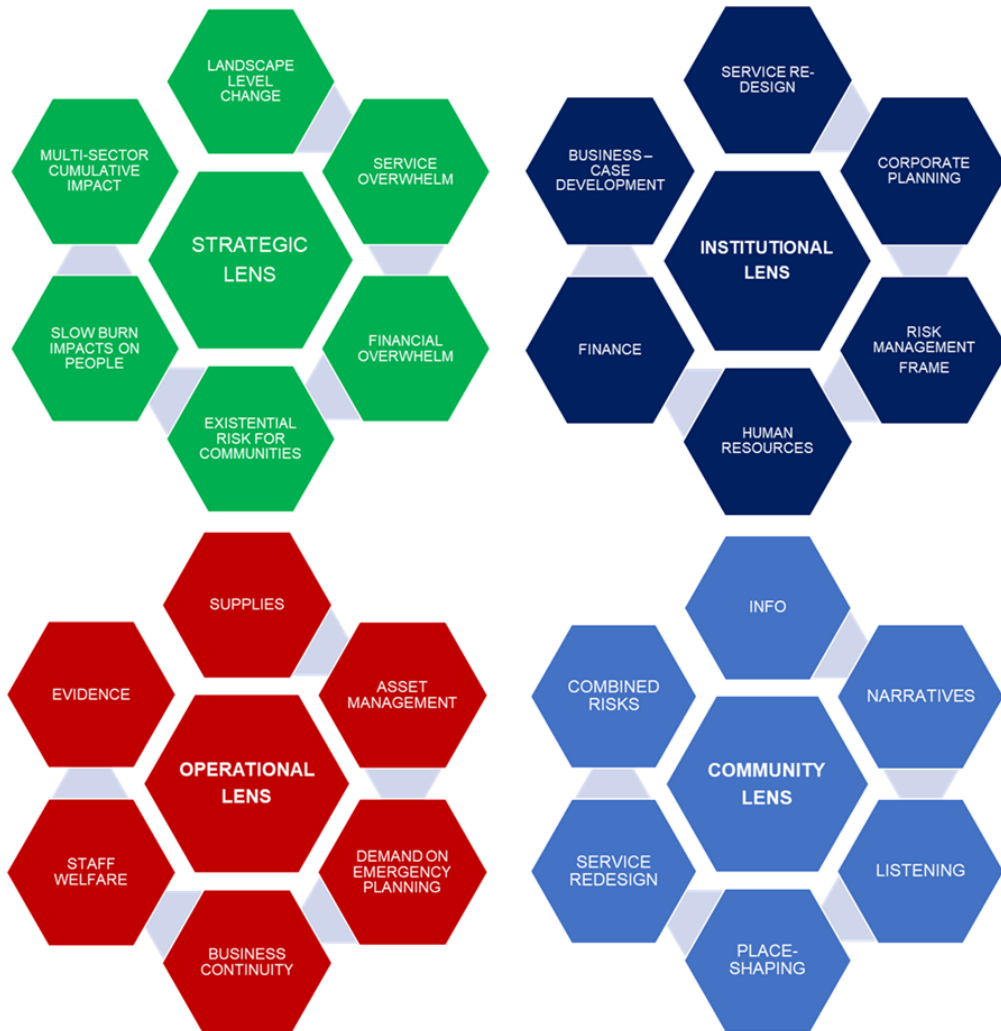
⁵⁰ PDFs of the seminar PowerPoints developed by NSF to stimulate discussion in are available from Gwent PSB

⁵¹ An action to ensure more senior engagement in Seminars 2 and 3 was agreed by PSB Scrutiny and the PSB in December 2025.

⁵² 10 attendees were from Monmouthshire Council. Newport CBC and Blaenau Gwent CBC did not attend, and Newport CC had one participant.

6.8 The three seminars encouraged participants to view climate risk and adaptation through four leadership lenses - strategic, institutional, operational and community. This helped attendees to explore the types of issue they will need to address to encourage adaptation within their own institutions, but also more broadly across Gwent⁵³.

Figure 9: Leadership Lenses For Climate Adaptation



6.9 The following sections explore the results of this dialogue. Leaders see their roles in four distinct areas; leading a strategic shift on climate risks internally and externally; through institutional adaptation to ensure climate risk is integrated to core work; through effective operational planning to deal with current and future risks and by planning services to support vulnerable communities as climate impacts strengthen in coming decades.

⁵³ These have been developed and used extensively in climate leadership work by NSF: they describe key elements of leadership focus at each level and help to stimulate thinking of leaders about their roles and others' roles in adaptation at multiple levels on climate risk. IPR of NSF.

6.9 LEADING A STRATEGIC SHIFT towards climate adaptation

a) Leaders engaged in the CCRA suggested that a strategic shift is required in the way their organisations and partnerships address climate risk and adaptation. They see their roles as being central to this. The following paragraphs and lists reflect some of the view of leaders in relation to this shift, how decision-making will need to change and the challenges this presents. These ideas explore what effective climate leadership at a strategic level might look like in Gwent.

b) The following **core messages** were seen by leaders as central to this strategic shift. These messages need to be consistently given in different arenas of work and contexts:

- climate risks will increasingly affect core activities of every organisation in Gwent
- climate risk is not currently sufficiently part of decision making
- integration and mainstreaming of climate risk as a key consideration in strategy and service planning is vital
- the narrative on climate risk needs to shift from cost to core requirement and responsiveness to readiness
- the risk frame on climate change needs to broaden to encompass the frame set out in the CCRA
- leaders need to acknowledge the limitations of current approaches

c) The following **methods** were identified as being key to achieving this strategic shift:

- raising climate risks consistently in discussions at Cabinet, Executive, Board and Committee level
- influencing the content, aims and objective strategic plans to address climate risks
- influencing strategic decision making by expecting climate risk analysis from others
- assessing service delivery impact of climate risks for current services to plan for future services
- building knowledge and skills in leadership groups to ask the right questions about the right issues
- develop skills in contested decision-making and consensus building
- establish climate risk as part of business case development at all scales
- supporting elected members to use their knowledge of climate risk in their ward, committee and executive roles including full Council debates on integration

d) Leaders also saw some **challenges** to achieving this shift:

- hard choices are needed to fund climate adaptation
- inhibited long-term planning due to short political cycles and short-term priorities
- shifting key actors thinking towards proactive rather than reactive approaches
- the complexity and requirements of multi-sector working
- developing political and officer-level support internally
- leading community conversations about loss

e)) Discussions also focused on who leaders might need to **influence** at a strategic level. Internally they saw the support of their senior leadership team and elected, board and committee members as key determinants of success in achieving a shift in 'corporate ownership of climate risk. Externally, they saw; dialogue with Welsh Government as vital on impacts of climate risk on core budgets, levels of support for repeated impacts and partnership funding to support collaborative work; engagement with the Regional Partnership Board was also seen as vital to begin to plan for changing social and health service demands as climate change intensifies;

f) Achieving this strategic shift and **integration** was seen as the responsibility of individual leaders within their own organisations through the following activities:

- defining the organisational role to address climate risk
- leading, facilitating and acting as an intermediary e.g. exploration of climate risk between local authorities, town and community councils and third sector
- assessing climate risk implications for existing and new strategic plans as part of effective integrated impact assessment
- planning for financial risks, financial reserves management and future liabilities
- identifying and leading discourse on current activities that need to integrate climate risks (examples discussed included estate strategies and cross border cooperation on waste
- climate risk established as a core factor on placemaking approaches and service redesign; service planning and data systems

g) Gwent PSBs role in this strategic shift was seen in the following four areas by Gwent’s leaders:

<u>Understanding of climate risk</u>	<u>Evidence</u>	<u>Convening</u>	<u>Resources</u>
<ul style="list-style-type: none"> • providing overarching perspective of regional climate risk and priorities • supporting public sector CCRA training 	<ul style="list-style-type: none"> • data improvements and co-ordination • improving approaches to impact assessment frameworks 	<ul style="list-style-type: none"> • convening local actors and experts of issues of importance • allowing those at top tables to have more expansive and impactful discussions on adaptation 	<ul style="list-style-type: none"> • coordinated approach to resourcing • coordinate approach to WG interface on climate risk • acting as the place where budget and expertise can be pooled for shared benefit

6.10 INSTITUTIONAL INTEGRATION of Climate Risk

a) Leaders see their role as one advocacy, coordination, and communication, ensuring climate risk considerations are embedded across their ‘whole organisation’ – its departments, projects, and decision-making, strategic planning and risk assessment frameworks. They see assessing risks at the corporate and service levels as an essential step to integrate climate resilience into their core work, aims and objectives.

b) The following **methods** were identified as being key to achieving this integration:

- make a clear statement that climate adaptation is now seen (and required) as an integral part of core delivery
- cabinet/executive take lead on developing a corporate -whole organisation approach
- develop climate resilient service/operational plans
- service planning, budget setting to reflect climate risks and adaptation
- establishing effective methods to include climate risk and adaptation in financial business cases
- asset, maintenance and capital decision making to minimise future reactive spending.
- service-based climate risk assessments
- service planning templates with training/ support
- re-assessing 'measures of success'/operational performance
- mediation between technical and nature-based solutions
- training for officers and members using Integrated Impact Assessments IIA to support decision making
- quarterly updates on climate risk and adaptation activity

c) Leaders also saw a need to **build intelligence** and **skills** on climate risk alongside the above:

- business continuity exercises focusing on real world response to repeated/catastrophic climate impacts
- develop engagement skills for discourse with residents and businesses in ‘at risk’ communities
- mapping and identifying post-industrial landscape - scale considerations in asset management
- working with Town and Community Councils to better understand local risk and solutions

e) Achieving integration needs effective **managerial** and **elected member** advocacy on climate risk through:

- building member capacity to deal with community reactions to the threat of climate risk and methods of engagement with residents and agencies on solutions/response
- strengthening organisational readiness by upskilling senior and middle managers on climate risks to their specific portfolios of work
- building capacity across committees, including scrutiny to challenge decision-making
- joint -learning within organisations through attendance at each other’s meetings on climate risk
- climate risk management as a key requirement of senior hires

g) Gwent PSBs role in integration is seen two areas which can support individual organisations and institutions on climate adaptation across the region:

Convening

- inter organisation task groups
- joint learning between organisations through attendance at each other's meetings on climate risk
- supporting and informing existing collaborations / partnerships including CCR

Understanding of climate risk

- Delivering a 2-year upskill programme for service leads / operational managers across Gwent.

h) There is very little evidence found by this CCRA of corporate approaches to climate risk in Gwent. This needs to develop. In the author's opinion

- organisations should be developing corporate climate risk strategies and programmes - an approach advocated by Wales' Future Generations Commissioner⁵⁴, to take a 'whole organisation approach to this issue.
- Cabinet/Executive/Board level groups should lead this to challenge from business-as-usual approaches to service planning and delivery.
- this needs to involve senior leadership team, particularly finance leads, service managers, committee and board members
- progress by 2030 – would be a cohort of Gwent's s organisations planning corporately for climate risk with their own climate adaptation strategies – impacting service delivery, financial planning and delivery on the ground.

6.11 OPERATIONAL PLANNING for increased climate risk

a) Leaders engaged in the three seminars were able to reflect on the operational issues raised by staff from multiple disciplines and areas of expertise. Leaders' views were that:

- in local authority service areas dealing with highways, assets, infrastructure, drainage resources are focused on coping with short term challenges from severe weather events enabling things to get back to normal,
- highly skilled operational teams and finances are already stretched coping with current conditions.
- demand on these teams is likely to increase rapidly and sharply as a result of climate change .
- staff resources for future-focused planning are not being prioritised – instead, they understandably focusing on coping in the 'here and now'
- operational decisions are being made now which are not considering climate risk and may function as risk amplifiers. (an example is recently constructed buildings overheating from solar gain)
- decision-making needs to urgently consider potential risks from climate change to operations. It is not currently doing so.

b) In order to address these and other operational concerns leaders suggested the following might help

Improving understanding mapping risks against properties and assets that require operational services; with a clear signal to operational managers that climate adaptation is core business to operations, with an expectation that this will be embedded into day-to-day operational decisions:

Capacity building training for all officers and members on operational implications of climate risk to each service, supporting those involved in procurement, maintenance, service planning to make operational choices which consider climate risk; and increasing understanding of the role of ecosystem management as part of operational solutions to climate risk

Improving operational responses by planning forward for staff welfare as climate risk impact on operations; improving revenue funding to staff the right people in the

Local Resilience Planning strategic planning for increased intensity, and frequency of demand on civil contingencies managers with expertise feeding into

⁵⁴ <https://futuregenerations.wales/cym/wp-content/uploads/2025/08/Cymru-Can-strategy-1.pdf>

right place to address future risks; planning deployable solutions should critical infrastructure be compromised e.g inhibiting access for operational work

strategic, institutional and community level climate adaptation – locally, regionally, and nationally.

6.12 PLANNING SERVICES for Vulnerable Communities

a) Leaders heard evidence from the CCRA about the importance of planning ahead to collaborate with vulnerable communities following the Communities at Risk Deep -Dive (See Section 5). Attendees recognised that supporting these communities is taking them into ‘new complex territory’ as leaders, in terms of the sensitivity of community engagement and communication. They also recognised that the public sector needs to become prepared for this territory in a proactive way. This is seen as incredibly challenging

b) Some saw their roles as leading the conversations with affected communities, holding and receive community’s anger and fear; and using the learning from this engagement to inform forward planning for enhanced/new service demands in other communities which may be affected in the same way.

c) Others saw a key personal role in preparing the ground for these conversations; to help to develop non-parochial, cross party and cross ward working; providing information on climate risk as part of the context for difficult decisions; by explaining options and trade-offs and not over-promising support.

b) Leaders saw the following as important elements in engaging vulnerable communities :

Evidence	Managing change	Collaborative working
<ul style="list-style-type: none"> • providing detail on scale and nature of likely impact • layered maps with interpretation to inform discourse • identification of key issues for at risk communities • listening and learning from local reaction • learning from solutions elsewhere (e.g. community fire and flood wardens) 	<ul style="list-style-type: none"> • exploring implications of [slow burn] service needs to social service for example • assessing potential disruption to services • produce area specific plans with options for adaptation • scenario planning for communities cut off by landslides, road, and drainage deterioration 	<ul style="list-style-type: none"> • working the through community and town councils on place-based adaptation plans • engaging communities of interest including businesses and farmers • upskilling communities (in monitoring, maintenance, and emergency responses) • identifying the role of nature-based solutions in specific localities

e) This is an area of work that Leaders view as difficult. It is strongly recommended that Gwent PSB partners begin planning for this complex and sensitive work now.

7. CLIMATE RISK PRIORITIES FOR GWENT

7.1 This CCRA indicates that specialists, leaders, managers, elected members, and partners from across Gwent recognise that there is an urgent need to integrate climate risk into their core work. This CCRA is a resource to enable them to begin that process.

7.2 The author has used the wide range of qualitative data, expert opinion, and available quantitative data to identify nine priority areas where combined climate risks are likely to have significant impact across Gwent as the climate continues to change. How they play out in each local authority area (their consequences) and the short, medium to long term effects (their significance) on local wellbeing needs further granular work by local authorities, public sector partners and the PSB 2026-30. These nine areas should be the focus of climate adaptation work going forward. Suggestions have been made on the initial adaptation focus of further collaborative work. These are the ‘headlines’ from the CCRA.

A: Post-Industrial Gwent Gwent's post-industrial landscapes are highly likely to become more dynamic as a result of climate change. There is increased potential for repeated intense rainfall combined with extended periods of extreme heat and wildfire destabilising coal and spoil tips, ‘activating’ contaminated land; impacting old mine workings, impacting subterranean features and historical landfill, with increased likelihood of subsidence; changing groundwater levels and dispersed pollution. Current fragmented and reactionary approaches to managing these features will be insufficient to deal with incidents and their after-effects in a changing climate. More detailed mapping and research is required alongside scenario planning for combinations of effects occurring more frequently across Gwent.

Initial focus: - establish a strategic approach including multi-agency dialogue, and scenario planning to support affected communities

B: Highways, Bridges and Paths It is highly likely that Gwent's highway, bridge, and public rights of way network will come under strain from more frequent combinations of heavy rainfall, flooding and extreme heat, wildfire, and ground movement. This is likely to increase the speed of deterioration of an already vulnerable road and path networks, affecting surfaces and foundations, embankments and impacts of windfall from trees. Increased bridge scour and debris damage is likely from river flooding. Disruption is likely to increase from road and bridge closures, maintenance backlogs, and inadequate funding to address existing and new vulnerabilities. Cumulative effects of repeated road and bridge closures and access problems will have an increasing impact on communities, public services and businesses across the region but will be particularly acute for locations that are isolated and vulnerable network ‘pinch-points.’ Gwent needs to prepare and plan to manage and reduce disruption to this essential infrastructure.

Initial focus: A Gwent-wide analysis of road, bridge, and path vulnerability to influence Government funding and inform local planning.

C: Co-located infrastructure Public sector partners and communities will need to plan for increased frequency, scale, and costs of disruption to key infrastructure, especially at infrastructural ‘pinch points, where water, sewerage, transport, utilities, and drainage infrastructure are co-located. Vulnerability of utilities infrastructure to flood, landslips, bank erosion, severe weather damage, and wildfire is highly likely. Current vulnerabilities need to be better understood. Gwent's infrastructure is likely to continue to be impacted and degrade from combinations of heavy rainfall, extreme heat, ground movement, and erosion. The lack of availability of finances will continue to inhibit the climate adaptation required to maintain it. Maintaining the integrity of historical infrastructure such as Monmouthshire & Brecon Canal and Gwent's reservoirs will become increasingly important going forward.

Initial focus: Identifying vulnerabilities at infrastructural pinch-points across Gwent and climate risk to Monmouthshire & Brecon Canal

D: Public sector assets Gwent's diverse public sector assets including buildings, leisure centres, schools, parks, care homes, hospitals; housing, cemeteries, country parks, county farms as well as other buildings and land. These assets will be subject to different combinations of risk resulting from heavy rainfall, extreme heat,

ground movement, increased flooding, and erosion and for some, wildfire. A major concern is that older asset deterioration will speed up through combinations of increased heavy rainfall and extended hot dry periods. Understanding the direct impacts of these effects on building fabric and vegetation; the impacts on local roads and utilities that enable the asset to 'function'; and the vulnerability of the immediate environs to climate risk will be important; as well as exploring the implications of repeated disruption to business continuity. Understanding the likely impact on the school property portfolio and industrial and business sites across Gwent are an important first step.

Initial focus: Planning for impacts on school property portfolios and industrial and business sites across Gwent are an important first step.

E : Vulnerable Communities Gwent's diverse settlements are highly likely to experience combined and cumulative effects from repeated severe weather events on thermal comfort, accommodation, livelihoods, access to services, access to food and fuel, financial hardship, and mental health. Each community will experience this differently depending on local circumstances, landscape features, and existing pressures. Some communities will be more resilient than others. Communities that experience particularly severe repeated impacts will need support in the short term, medium and long term to cope. This goes beyond existing emergency planning and community risk management approaches. Support bodies will need to plan for cumulative effects on communities; mindful of the erosion of capacity to respond from communities and the public sector. Climate change will mean service demands from communities are likely to change, especially as maintaining wellbeing in some locations and communities becomes more difficult.

Initial focus: Progressing town -level climate adaptation planning across Gwent would help support vulnerable communities from combined risks

F: Gwent's Businesses Small and medium sized businesses in Gwent's towns, on its business parks, industrial estates, tourist sites, and farms will all need to operate in a 'new normal' caused by climate change. These businesses are likely to be increasingly impacted by transport disruptions, utilities disruption, property damage, staff and customer and supplier access issues, as well as higher insurance costs. This will mean that their business continuity planning, choice of location and supply chains need to factor in repeated climate risk. Each business in Gwent will experience this differently through combinations of risks depending on the location, the resilience of utilities and transport infrastructure and the building they operate from. Understanding likely risks to Gwent's town centres, business and industrial estates and rural businesses from combined cumulative risks would help to support Gwent's businesses through this change.

Initial focus: Detailed location and site analysis and broader business support on this issue will help Gwent's businesses plan forward.

G : Wildfire Management Combinations of warmer conditions, more frequent prolonged periods of heat and seasonal change are likely to mean larger areas of drier 'fuel' being 'available' for wildfires in Gwent's grassland, woodland, and upland peatland areas, on and adjacent to coal deposits and coal spoil heaps. Increases in wildfire incidents and the scale of wildfire incidents are likely to stretch existing wildfire response, which is reactive. Increased numbers, severity, and length of wildfires will have implications for Gwent's forest estate, slope stability, water quality from soil run-off, infrastructure, human health from particulates in the air, during and in the aftermath of wildfire, as well as having a direct threat to life. This is of major concern, Current systems are not set up for this step change in risk, in relation to forward planning for vulnerable woodland sites, understanding the implications of increased risk to communities adjacent to potential wildfire areas, or planning forward for greater wildfire risk to utilities, roads and business sites.

Initial focus: More work to understand the potential impacts on woodlands, communities adjacent to potential wildfire areas, utilities, roads, and business sites will be an important as a first step

H: Altered Landscapes: Gwent's natural environment, varied landscapes, ecosystem services (clean water, air, functioning soil, food production) are highly likely to be impacted by climate change. Woodland, wetland features, saltmarsh, and Gwent's farmland are likely to be particularly impacted by combined risks including the effects of

increased river flooding causing bank erosion and pollution, extreme heat and drought impacting on water quality, increased likelihood of wildfire on grassland, woodland and uplands, soil loss and in coastal areas, coastal erosion, and saline intrusion. Effective vegetation, soil, and water management will be needed in a more 'dynamic' landscape to 'stabilise' landscape features like slopes, spoil tips, and slow down flood waters; as well as ensuring farmland remains productive as the climate changes. Understanding and planning for climate risks in the Gwent Levels, Usk and Wye Valleys are seen as priority areas to begin more detailed analysis and adaptation.

Initial focus : Resilience of the Gwent Levels and habitats in the Usk and Wye Valleys is seen as critical, alongside broader support for Gwent's farmers and landowners.

I: Leadership Gwent's leaders involved in this work have recognised that climate risks are not sufficiently 'factored' in as part of their organisation's activities and forward planning. Their staff involved in this assessment see effective leadership on this issue as critical; and poor leadership storing risks up for the future. Making climate risk a key part of decision-making is seen as essential. This means everyone considering how climate change might impact on what they do – whatever their area of work or responsibility. As a result of this CCRA Individual organisations should be thinking about what these climate risks might mean for them across all of their functions – undertaking their own risk assessment and planning adaptation. The Public Services Board has a leadership role to, –primarily in convening specialist groups to develop evidence, solutions, and support material and workshops to build capacity to address the risks described above.

Initial focus: Organisation level climate risk assessments and action planning; regional specialist working group programme on priority risks

8. ROLE OF GWENT PUBLIC SERVICES BOARD – Regional dialogue and targeted capacity building

a) Throughout the CCRA, the consultancy team helped participants to explore what support needs are required to engage key actors and discuss the potential role of the Public Services Board at a regional level, supporting its constituent organisations to address climate risk.

b) A clear message from the CCRA is that **generic information** from the PSB to engage the public across Gwent on climate risk is not a priority. Many participants felt that information on local climate risk would be better coming from a trusted source of information, the local authority, rather than the PSB, which does not have a public profile.

c) Strong support was shown for specific engagement with **targeted audiences** including:

- **Local Authority Ward Members** – including ward climate risk profiles; a guide for engagement and a bespoke training programme for current members and new members following the 2027 local elections
- **Local Businesses** – including a practical guide to climate risk and adaptation for SMEs; farmers and agricultural businesses
- **Town And Community Councils** – workshops on climate risk and adaptation; town and community climate adaptation plans (see list of communities in 4.13)
- **Vulnerable Communities** – workshops exploring best practice on community led emergency response
- **School Governors and Head Teachers** – workshops and guide to climate risk to buildings and school grounds

In many cases these requests came from individuals from these target audiences, asking for face-to-face workshops and detailed discussions with practical advice to their own situation. Tools such as those above could be developed by the PSB that could then be 'localised' by the Council and other partners in each local authority area.

d) The CCRA has also identified a number of other roles for the PSB including the following areas of activity that the PSB could lead on establishing, convening, and resourcing, these are:

R1 regional specialist group to develop evidence, solutions, joint training, on **highway, bridge, and path network** climate resilience

R2 regional specialist group develop evidence, solutions, joint training, on **post-industrial landscape** and climate risk collaborating with the Mining Remediation Authority

R3 regional specialist group develop evidence, solutions, joint training, on **asset management** climate resilience (land and buildings)

R4 task and finish group to adapt approaches to corporate and **community risk management** to adequately reflect, scale, complexity and amplification issues associated with climate risk

R5 regional specialist group to develop evidence, solutions, joint training, on climate risks to Gwent's **transforming landscapes**: with a focus on effects on the Gwent levels, Usk and Wye Valley and Monmouthshire & Brecon Canal

R6 regional specialist group to develop evidence, solutions, joint training, on managing changes of **health and social services demand** in a changing climate; to coordinate with the Regional Partnership Board

R7 regional specialist group to develop evidence, solutions, joint training, on coordinating short medium and long- term support to **communities at risk**

R8 develop a scaled up strategic response to **increased wildfire risk** across Gwent with a focus on post-industrial sites and vulnerable settlements and assets.

R9 joint work on **Geographical Information Systems** to layer and interpret information to identify spatial distribution of combined risks in local communities

R10 coordinate approach to **interface with regional and national bodies** including Welsh Government funding of highways, bridge and path networks and asset management; and with Cardiff Capital Region on strategic development, transport and energy planning and funding

R11 adaptable information resources to support **local authority engagement** including with ward members, town and community council vulnerable communities, businesses, and farmers amongst others

R12 **joint training** for corporate management teams, service leads and ward members; and on effective approaches to **impact assessment** that reflect the scale and range of climate risks.

9. CONCLUDING REMARKS – first steps towards a climate ready Gwent

a) The CCRA suggests that up to this point Gwent's institutions and organisations, partnerships and networks are not planning adequately for the scale and complexity of risks that are likely to occur as a result of climate change. They are unprepared. Institutions have not yet organised themselves to deal with this complexity and the likely scale of change. They urgently need to address their approaches to this issue at strategic, institutional, and operational scales as well as planning support for the most affected communities.

b) The backdrop to this assessment are both short and medium-term resource constraints on public funding. These constraints will profoundly affect the public and other sector's appetite to address longer term climate risk. The CCRA is intended to provide the PSB, its constituent partners and stakeholders across Gwent with a foundational resource to work towards climate resilience. It is hoped this resource will enable partners' greater recognition and climate leadership to climate risk as part of their core work.

d) Evidence from the CCRA indicated that Gwent has committed public sector professionals working with third, community and private sector colleagues who see the urgent need to 'bake in' climate risk and adaptation into their activities across Gwent. They need leaders to enable them to do that.

e) In NSF's previous work on CCRAs a key factor which can reduce or exacerbate climate risk is the institutional approach to the issue. Institutions can function as a climate risk multiplier through inaction; maladaptation; poor decision-making, inadequate data gathering; inadequate engagement with partners to explore risks; and maintaining reactive rather than proactive approaches to the issues at play.

f) Conversely, institutions can develop solutions through decision making which integrates climate risk as a consistent factor for consideration; effective data gathering; exploring climate risk through focused partnership work to understand the ramifications of climate risk on the ground; and proactive approach to strategic medium to long term planning; with leaders influencing funders and government to support them. This is the space Gwent's organisations need to occupy to begin to address the gravity and scale of the issues emerging from the CCRA. The nine priority areas provide a focus for climate adaptation work 2026-30 by partners in Gwent,

Dr. Alan Netherwood
Netherwood Sustainable Futures
31st March 2026

APPENDIX A Contributing organisations and future collaboration needed

<p>CCRA contributors Abergavenny Town Council Aimee Parker Consultancy Aneurin Bevan University Health Board Blaenau Gwent County Borough Council Bron Afon CADW Caerphilly County Borough Council Caldicott Town Council Cwmbran Community Council Dwr Cymru / Welsh Water Geoclimatica Gwent Association of Voluntary Organisations Gwent Energy CIC Gwent Police Gwent Levels Gwent Local Nature Partnerships Gwent Wildlife Trust Hedyn Llais y Goedwig Maindee Unlimited Mathern Community Council Mining Remediation Authority Monmouthshire County Council Magor / Undy Gwent Levels National Grid Natural Resources Wales Nevill Hall Nature Spaces Newport City Council Newport Live Pobl Pontypool Town Council Power Up Cymru Public Health Wales RSPB Severn Wye Energy Agency South Wales Fire and Rescue Authority Tai Calon Community Housing Torfaen County Borough Council Torfaen Local Nature Partnership Torfaen Strategic Economic Forum Torfaen Voluntary Alliance University of South Wales Wales and West Utilities Whitecastle Community Council Wizard Zero Yn Ni Teg Cymru</p>	<p>Local Authority Input The following local authority participants contributed to the CCRA:</p> <ul style="list-style-type: none"> • Cabinet and Executive Members • Committee, Scrutiny and Board Chairs • Ward Members • Chief Executive Officers and Deputies • Heads, Directors, and Corporate Managers <p>Managers and Officers leading on:</p> <ul style="list-style-type: none"> • Economic Development • Regeneration • Development Planning • Highways and Bridges • Assets and Property • Public Rights of Way • Countryside Managers • Ecologists • Climate Change • Sustainability • Flood Risk • Community development • Schools Services • Social Services • Housing • Food • Civil contingencies • Property Maintenance • Infrastructural Maintenance • Deprivation & Social Inclusion • Risk Management • Operations • Performance and Data <p>Future Collaboration should be sought with the following to communicate CCRA findings and engage on priorities</p> <p>Associated British Ports Newport Business in the Community Canal & Rivers Trust Chambers of Commerce Farming Union of Wales Federation of Small Businesses Gwent Regional Partnership Board Industrial Estate Owners (Gwent-wide) Marches Partnership National Farming Union National Trust Severn Estuary Partnership Town & Community Councils (Gwent-wide) Transport for Wales United Utilities Wales & West Utilities Welsh Government Divisions Western Power Distribution Wye Valley National Landscape</p>
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APPENDIX B UK Climate Change Committees risk framework for CCRA4

The following RAG rating is based on NSF's interpretation of the data after the CCRA.

This RAG rating should NOT be used to prioritise the risks and should NOT be used to communicate the findings of this CCRA
NSF has included this at the request of the CRG Group

Red signifies – high likelihood and high impact climate risk, all of these risks will require further investigation; and areas where the UK risk, if considered at a Gwent level might have a significant impacts **Yellow signifies** where a judgement on likelihood and impact needs further work; **Green signifies** UK and Wales risks and opportunities that are inapplicable at a regional and local level or where the Gwent work provided no evidence . The column on the right provides a brief comment on each risk from a Gwent perspective

Built Environment	examples of relevant issues raised during the CCRA
BE1: Risks to buildings and communities from heat	thermal comfort in all built assets, particularly schools; overheating; lack of shade
BE2: Risks to buildings and communities from flooding	scale of risks and unpreparedness for repeated, cumulative impacts and slow burn effects
BE3: Risks to buildings and communities from coastal change	scale of risks and unpreparedness for repeated, cumulative impacts and slow burn effects
BE4: Risks to buildings and communities, excluding from heat, flooding, and coastal change	scale of risks from post-industrial landscape on all receptors and knowledge gaps
BE5: Risks to indoor environmental quality	impact on health of all residents - thermal comfort -damp, evidence base at a local level
BE6: Risks to cultural heritage and landscapes	scale of risks to built heritage, valued landscapes and historical features, needs more work with CADW
BE7: Risks to facilities delivering public services, excluding health and social care	impact on public service budgets from repeated events particularly for highways network and maintenance
BE8: Risks to local resilience planning and emergency service response capabilities	limited capacity for continued repeated incidents, staff burnout, temporal scope of LRF work
BE9: Risks and opportunities to households from changing energy demand	increasing costs and equipment to maintain thermal comfort in repeated periods of extreme heat
Economy	
E1: Risks to UK macroeconomic performance and stability	direct and indirect economic costs of vulnerability of essential infrastructure, towns, business, retail, and tourism
E2: Risks to domestic and overseas physical assets of UK businesses	increasing and repeated supply chain resilience to public sector, town centres, businesses from impacts outside Gwent
E3: Risks to domestic and international supply chains and resource inputs of UK businesses	increasing and repeated supply chain resilience to public sector, town centres, businesses from impacts outside Gwent
E4: Risks to Productivity and Availability of Labour in the UK	impact on service provision and production from repeated impacts on business continuity - staff access and supplies
E5: Risks to financial institutions and the financial system	higher insurance costs for all organisations and communities; uninsurability for affected communities
E6: Risks to public finances	inadequacy of funding to address maintenance, degrading of essential infrastructure (roads) leadership to address gap
E7: Risks to household finances	costs from repeated inability to attend work; access to food; cooling costs; maintenance retrofit of housing
E8: Opportunities to UK businesses and financial institutions from delivering adaptation goods and services	opportunity to provide services to support adaptation (nature-based solutions); training skills to address climate risk; cooling retrofit and longer growing season
Health and wellbeing	examples of relevant issues raised during the CCRA
H1: Risks to people from heat	thermal comfort of vulnerable groups and general population from repeated and extended heat events; lack of shade
H2: Risks to people from extreme weather, excluding heat	instability in post-industrial landscape, tips, landfill, mines, contaminate land and water
H3: Risks to people from changes in air quality	risk of low-level ozone in existing Aire Quality Management Areas; particulates from repeated wildfire; indoor air quality

H4: Risks to people from climate-sensitive diseases	spread of malarial mosquitos in marshy wetland areas
H5: Risks to food safety and nutrition	access to food retail outlets; flood risk to existing supermarket sites; resilience of just in time supply chains
H6: Risks to health and social care delivery	access to staff and patients to health facilities, provision of domiciliary care in own homes; care home business continuity
H7: Opportunities for health and wellbeing	greater amount of shade and cooling hubs needed in towns to support social activity in extended periods of heat
Infrastructure	examples of relevant issues raised during the CCRA
I1: Risks to the delivery of infrastructure services from interdependencies with other infrastructure systems	infrastructural pinch points in valleys and towns; interdependencies between roads bridges, utilities and IT poorly understood.
I2: Risks to electricity generation assets	limitations of available data from energy providers needs further investigation
I3: Risks to electricity transmission and distribution	limitations of available data from energy providers needs further investigation
I4: Risks to fuel supply systems	interdependencies of resilient electricity and IT networks to support fuel infrastructure, gas, and vehicle fuels
I5: Risks to road transport systems	major concerns of cumulative combined risks to highways and bridge networks; condition assessment and funding mechanism
I6: Risks to rail transport systems	rail providers - national and Wales have clear climate risk and adaptation plans - maintenance, data gap, and funding challenge. TfW doing further modelling
I7: Risks to aviation, shipping, and other transport systems	risks to Newport Port's and other infrastructure from sea level rise, increased storm surges need investigating
I8: Risks to digital and communications systems	interdependencies with repeated emergency response and vulnerable IT connections and locations needs further assessment
I9: Risks to water supply and wastewater systems	current approaches by water management industry factor inc climate risk to domestic supply; private water supply is a concern
I10: Risks to waste management systems, excluding wastewater systems	management t of current landfill; historic landfill and waste licensing needs a more robust approach to assess climate risk
Land, nature and food	examples of relevant issues raised during the CCRA
N1: Risks to terrestrial and coastal ecosystems	major concerns on integrity of Gwent levels; impacts on woodlands in river valleys and soil quality and loss
N2: Risks to freshwater ecosystems	major concerns on pollution pulses and impacts of contaminants emerging from post -industrial landscape features
N3: Risks to marine ecosystems	major concerns on pollution pulses and impacts of contaminants emerging from post -industrial landscape features
N4: Risks to soil ecosystems	soil stability, mineralisation and loss and its impact of biodiversity and agriculture
N5: Risks to natural carbon stores and sequestration	impacts in uplands, peat deposits, bogs, sediments, and vegetation loss impacting on stores
N6: Risks to agriculture	combined and cumulative risks including water availability ; soil loss; changing seasonality; changing water quality; wildfire and disease
N7: Risks to fisheries and aquaculture	combined and cumulative risks including water availability ; soil loss; changing seasonality; changing water quality; wildfire and disease
N8: Risks to forestry	combined and cumulative risks including water availability ; soil loss; changing seasonality; changing water quality; wildfire and disease
N9: Opportunities for agriculture, fisheries, aquaculture, and forestry	no opportunities identified
N10: Opportunities for species and ecosystems	no opportunities identified
N11: Risks to food security	access to food retail outlets; flood risk to existing supermarket sites; resilience of just in time supply chains

APPENDIX C – References and analysis (Please refer to Section 3 for explanation of the categories)**ADAPTIVE strategies, plans, programmes, and projects**

Blaenau Gwent CBC(2024) Flood Risk Management Strategy. WSP
 Caerphilly CBC (2024) Flood Risk Management Strategy and Action Plan
 Dwr Cymru (2024) Water Resources Catchment Management Plan
 Dwr Cymru (2024) Water Resources Management Plan

Dŵr Cymru Welsh Water (2024) Drainage and Wastewater Management Plan

Gwent PSB (2023) Well - being Plan

Monmouthshire CC (2035) Strategic Flood Consequence Assessment

Netherwood & Thomas (2019) Climate Ready Gwent: Lived Experience Report for Gwent PSB

Newport CC (2024) Flood Risk Management Strategy
 NRW (2022) Welsh part of the Severn River Basin Management Plan (2021-2027) Summary

NRW (2026) Flood Map for Planning

South-East Wales Resilient Uplands Project (2018-21)t

Torfaen CBC (2024)Monmouthshire & Brecon Canal Strategy 2024-34

Torfaen CBC (2024) Local Flood Risk Management Strategy

Transport for Wales (2023) Climate Adaptation & Resilience Plan

Transport for Wales (2025) Climate Adaptation & Resilience Plan: Annual Progress Update 2024/25

Welsh Government (2024) TAN 15: Technical Advice Note 15 Development, flooding and coastal

Torfaen CBC (2024) Green Infrastructure SPG

INTENTIONAL strategies, plans, programmes, and projects

Blaenau Gwent CBC (2006) Adopted Local Development Plan 2006-21

Caerphilly CBC (2022) Corporate Plan: Wellbeing Objectives 2023-28

Monmouthshire CC ((2014) Adopted Local Development Plan 2011-21

Monmouthshire CC (2024) Climate Change & Nature Emergency Strategy

Monmouthshire CC (2024) Green Infrastructure Strategy

Monmouthshire Local Nature Partnership (2025) Nature Recovery Plan

NRW (2025 (SONAAR) State of Environment Report

Newport CC (2022) Green Infrastructure Assessment

Newport CC (2015) Adopted Local Development Plan 2011-2026

Torfaen (2013) Adopted Local Development Plan 2013-21

Torfaen PSB (2019) Green Infrastructure Strategy

Frame used for climate risk and adaptation

strategic approach; maps; interventions; responsibilities; info

strategic approach; maps; interventions; responsibilities; info

basic vulnerability assessment; future supply scenarios

climate modelling for water resource zones covering Gwent for supply

context; sewer overflows; vulnerability assessment; investment planning

commitment to undertake CCRA and address climate adaptation

strategic approach; maps; interventions; responsibilities; info

local analysis of risk; eight case studies; engagement; recommendations; data

strategic approach; maps; interventions; responsibilities; info
 buffer zones; riverside corridors; riverside shade

flood maps for zones 2 and 3 with climate allowances
 upland water storage through land management planning
 objective 5, monitoring, water management focus

strategic approach; maps; interventions; responsibilities; info

detailed locational information of flooding of different types with maps

detailed strategy, local information, and action plan

policy flood maps for zones 2 and 3: sea, rivers, watercourses, defended zones

climate resilience of key objective of SPG; specific step in site assessment

s3 adapt to current and future effects of climate change

greener (obj 5) natural environment frame for climate risk

s12 flood risk

CCRA3; LRF; embedding

flooding, drought, shade, green// blue space corridors
 diversity, extent, condition, and connectivity; loss; pollution

climate change as a key driver off ecological change and the role of nature-based solutions

flooding, drought, shade, green// blue space corridors
 objective 2 and gp1: flooding and health focus

s3 through sustainable design

flooding, drought, shade, green// blue space corridors

NRW South-East Wales Area Statement	climate ready Gwent report on lived experience project and process
Resilient Greater Gwent (2022) Greater Gwent Nature Recovery Plan	as part of functioning and resilient ecosystems and regulating services
NRW (2021) Southern Ebbw Forest Resource Plan	climate adaptation as part of management operations
Wye Valley (AONB) (2021) Wye Valley AONB Management Plan	managing change, community impacts; woodlands
Cardiff Capital Region (2025) Transport for CCR Regional Transport Plan for South -East Wales	TP08 Climate Resilience flood and drainage for roads and bridges
Marches Partnership (2026) Website	water and flood management innovative investment models
Newport CC (2025) Tree Cover Regeneration Strategy	mention of role in flood prevention and need for resilient species
NRW (2019) Climate Ready Gwent (webpage)	adaptation aspirations from NRW Area Statement
Torfaen CBC (2023) Sustainable Location SPG	refers to LDP Policy 3 re climate resilience of location

CONTEXTUAL strategies, plans, programmes, and project

Abergavenny Place Making Plan (2025)

Blaenau Gwent (2025) Blackwood Place-making Plan June 2025

Blaenau Gwent & Torfaen LNP (2024) Nature Recovery Plan

Blaenau Gwent CBC (2022) Corporate Plan 2022-27

Blaenau Gwent CBC (2025) Bargoed Place-making Plan June 2025

Caerphilly CBC (2020) Green Infrastructure Strategy

Gwent PSB (2022) Wellbeing Assessment

Monmouthshire CC (2020) Countryside Access Improvement Plan

Monmouthshire CC (2023) Economic Employment & Skills Strategy

NRW (2025) Gwent Levels. Mapping Resilient Ecological Network. Report No: 855

Torfaen (CBC) 2024 Biodiversity & Ecosystem Resilience SPG

Torfaen CBC (2022) Blaenavon-Placemaking-Plan.pdf

Torfaen CBC (2022) Climate & Nature Emergency Action Plan

Usk Catchment Partnership (2026) Website: Vision

Welsh Government (2026) Draft Strategic Planning Guidance for the Gwent Levels National Natural Resource Area (Future Wales Policy 9)

Wye Catchment Partnership (2019)

frame used for climate risk and adaptation

outcome, among many of 'future ready and well-managed' goal

by product in long list of aims

woodland, wetland, key pressure, connectivity

one of four priorities - decarb and nature focus

by product in long list of aims

flooding, drought, shade, green// blue space corridors

future trend ; ccra3; nature risks

cited as a strategic risk with examples of impact

alludes to adaptation as part of Marches partnership

background: movement of species and species adjustment as context for SPG and LDP policy 3

strategic context

green infrastructure commitments otherwise total focus on decarbonisation

water quality focused climate adaptation as part of vision

connectivity; regulation; buffering; water - not existential?

water quality focused climate adaptation as part of vision

ABSENT strategies, plans, programmes, and projects

Blaenau Gwent & Torfaen CBC (2025) Thriving Together

Blaenau Gwent CBC (2020) Decarbonisation Plan

Blaenau Gwent CBC (2022) Local Area Energy Action Plan

Caerphilly CBC (2010) Adopted Local Development Plan 2010-21

Caerphilly CBC (2022) Local Area Energy Action Plan

Caerphilly CBC (2024) Decarbonisation Plan

Caerphilly CBC (2025) Economic Regeneration Strategy 2025-35

frame used for climate risk and adaptation

no reference to climate risk

no corporate focus on climate risk

no reference to climate risk

no clear reference to climate risk

no reference to climate risk

no corporate focus on climate risk

no reference to climate risk

Caerphilly CBC (2026 web) Caerphilly Town 2035 Placemaking Plan	no reference to climate risk
GAVO (2025) Strategic and Operational Plan	referred to in an operational pestle analysis
Gwent Police (2025) Chief Constables Delivery Plan	commitment to protect vulnerable communities
Monmouthshire CC (2022) Taking Monmouthshire Forward 2022-28	no focus on climate risk; climate emergency as context
Monmouthshire CC (2022) Local Area Energy Action Plan	no reference to climate risk
Monmouthshire CC (2024) Local Transport Strategy 2024-29	decarbonisation focus
Newport CBC (2025) Corporate Plan 2025-27 Update	no mention of climate risk; solely decarbonisation
Newport CC (2022) Local Area Energy Action Plan	no reference to climate risk
Newport CC (2022) Organisational Climate Change Action Plan	no corporate focus on climate risk
NRW (2023) Wye Valley South Forest Resource Plan	climate risk not part of ecosystem resilience frame
NRW (2023) Heads of the Valleys Forest Resource Plan	climate risk not part of ecosystem resilience frame
NRW (2024) Wye Valley North Forest Resource Plan	climate risk not part of ecosystem resilience frame
NRW (2026) Cwmcarn Forest Resource Plan	climate risk not mentioned; wildfire seen as risk
Resilient Greater Gwent (2021) Greater Gwent State of Environment Report	as one of a number of pressures on biodiversity
SE Wales Regional Partnership Board (2026) webpage on strategy	no reference to climate risk
SEWTRA (2015) South-East Wales Valleys Local Transport Plan 2015-2020	no reference to climate risk
South Wales Fire and Rescue Service (2025) Carbon Reduction Plan 2024-30	decarbonisation focus
South Wales Fire and Rescue Service (2025) Strategic Improvement Plan 2025-40	no reference to climate risk
SWTRA (2026) Website	no information available on strategy or planning
Torfaen CBC (2021) Economy & Skills Strategy 21-30	no mention of climate risk to resilient workplaces
Torfaen CBC (2022) Community Wellbeing Strategy	no mention in resilient communities' approach
Torfaen CBC (2022) Local Area Energy Action Plan	no reference to climate risk
Torfaen CBC (2026 web) Cwmbran Futures (currently being developed)	no reference
Torfaen CBC Pontypool-Placemaking-Plan.(2022) pdf	no reference

REFERENCES USED IN ADDITION TO ABOVE

Betts, R.A., and Brown, K. (2021) Introduction. In: The Third UK Climate Change Risk Assessment Technical Report [Betts, R.A., Haward, A.B. and Pearson, K.V. (eds.)]. Prepared for the Climate Change Committee, London

Climate Change Committee: Evidence for the third UK Climate Change Risk Assessment (CCRA3) Summary for Wales.

Netherwood, A 2022 Prepared for the Climate Change Committee, London

Met Office (2025) Blaenau Gwent Climate Change Report. Climate Data Portal

Met Office (2025) Caerphilly Climate Change Report. Climate Data Portal

Met Office (2025) Monmouthshire Climate Change Report. Climate Data Portal

Met Office (2025) Newport Climate Change Report. Climate Data Portal

Met Office (2025) Torfaen Climate Change Report. Climate Data Portal

Netherwood, A & Thomas, D (2019) Climate Ready Gwent 'Lived Experience' Report

Netherwood, A & Thomas, D (2020) Pembrokeshire Climate Risk Protocol Report

UK Government (2025) National Risk Register

Welsh Government (2025) Wales Index of Multiple Deprivation (website)

Welsh Government (2025) Wales Resilience Framework

APPENDIX D – SOURCES OF GIS INFORMATION (According to local authority GIS leads)

Potential data set to be explored post April 2026	Source
Air Quality Management Areas	LA
Bridge network	OS & LA
Business hubs	LA
Care Homes	OS & LA
Coastal squeeze	NRW
Country Parks	DMW
Designated sites	NRW
Electricity network	OS
Emergency services	OS
Farms/rural businesses	LA
Flood defences	NRW
Flood Risk (current and future)	NRW
Food Depots	LA
Gas pipelines	LA
Habitats	LA
Health facilities	OS
Heritage Features	CADW
Housing	LA
Industrial estates	OS
Industrial water abstraction	OS
Landfill (managed and historic)	LA
Leisure facilities	OS
Pollution Sites	NRW?
Port facilities	OS
Post Industrial features - contaminated land	LA
Post Industrial features - mines and minewater	Mine Remediation Authority?
Post Industrial features - slope instability	Mine Remediation Authority?
Post Industrial features - spoil	Mine Remediation Authority?
Post Industrial features - subsidence	Mine Remediation Authority?
Private water abstraction	NRW?
Private Water Supplies	NRW
Public sector offices and depots	LA
Regeneration Sites	LA
Reservoirs	NRW
Road network	OS LA
Schools	LA
Settlements	LA
Sewage/wastewater network	OS
Social services recipients	LA
Temporary Accommodation	LA
Town Centres	LA
Tree condition	LA
Water supply network	OS
Wetland	LA
Wildfire (Woodland, Grassland, Peatland)	SWFRA?
Woodland	LA

OS is Ordnance Survey DMW is Data Map Wales, LA is Local Authority
SWFRA is South Wales Fire & Rescue Authority

These can be used to help address the questions raised in section 4 of this report.

APPENDIX E – Carbon emissions associated with the CCRA Dr. Alan Netherwood owns and manages 17 acres of pasture and 5 acres of woodland at Banc Olive, Taliaris, Carmarthenshire. For every commission, NSF commits to planting replacement trees as part of the overall woodland and hedgerow management of the site. Planting of replacement saplings to infill woodland and hedges will capture carbon as they mature over the subsequent 60 years to offset emissions associated with this commission. Over their 60-year life they will sequester 1 tonne of carbon dioxide per tree. NSF will plant 20 oak saplings in early April 2026 to enable this. <https://www.oakoffset.co.uk/what-we-do>